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Locusts and Grasshoppers of the U.S.S.R. and Adjacent Countries

(Saranchevye fauny SSSR i sopredel'nykh stran)

Part II

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Translation Editor's Note: Classification embracing genus and all forms below genus are underlined, where genus and species only occur, they are both underlined and letter-spaced.

† [Since the common names used in the U. S. S. R. usually have no exact English equivalent, literal translation of the Russian common names has been given.]

FOREWORD

The present book, one of the series *Small Fauna* (Malaya fauna), No. 9, is the second and final volume of a work bearing the same title. It deals with the last two subfamilies—*Acridinae* and *Oedipodinae*. The first subfamily is treated by L.L. Mishchenko*, and the second by G. Ya. Bei-Bienko.

The second volume, like the first, treats of all the species in the two subfamilies which are registered for the U. S. S. R., adjacent European countries and Hither Asia**, within those boundaries indicated in the foreword to the first volume. These are in Europe the Scandinavian countries, Poland, Czechoslovakia, Germany, Austria, Roumania, Bulgaria, and the northern part of Yugoslavia, and among the other territories—Asia Minor, Iran (excluding its southern part), northern Afghanistan, Mongolia, western and northeastern China (Sinkiang, Manchuria and the provinces bordering on the south as far as the Yangtze River), Korea and Japan (excluding its southern part). In some cases, either to complete the picture, or for other reasons, some species which are found beyond the limits of the indicated territories have been included.

The present book deals with 90 genera and 400 species of grasshoppers. Of these, 54 genera and 274 species belong to the subfamily *Acridinae* and 36 genera and 126 species to the subfamily *Oedipodinae*.

In order to unify both volumes and to make for their easier use, the authors found it expedient to employ continuous enumeration of families, genera, and illustrations in both volumes.

Species found within the boundaries of the U. S. S. R. are, as in the first volume, designated by an asterisk.

Addenda and corrigenda at the end of the book include the new data which were published while the present work was in preparation.

The alphabetical index at the end of the book covers both volumes and was compiled with the aid of V. N. Makalovskaya.

* [The names of Mishchenko and other scientists are given in transliteration within the text while in taxonomy their Latinized version is used (e. g. *Mistchenko*)]

** [This term has the same connotations as "the Near East"]

† [These have been incorporated in the text of the translation]

The Family ACRIDIDAE — TRUE GRASSHOPPERS

5. Subfamily ACRIDINAE

(= Tryxalinae, Truxalinae)

(Compiled by L. L. Mishchenko)

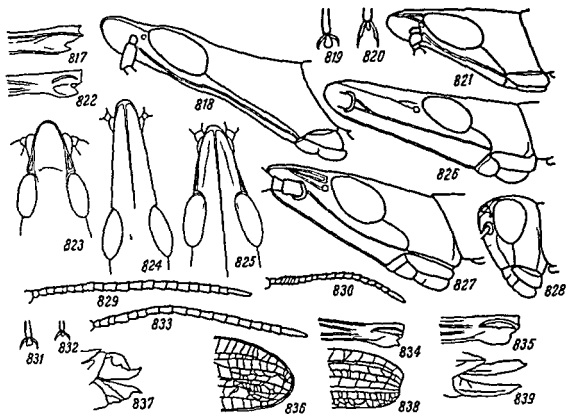
Head conical, front sloping, making an acute angle with the vertex in profile. Foveolae lateral, distinct, but sometimes entirely absent. Pronotum smooth or with weak tubercles and rugae; median carina low; lateral carinae usually well developed, sometimes partly obliterated. Prothorax between the coxae of the forelegs smooth or with small median tubercle; its anterior margin low. Hind femur between the longitudinal carinae on the outer side nearly smooth or with regular convex areas pinately arranged; inner aspect in chirping species with an additional carina composed of small tubercles or spinules. Hind tibia without outer apical spine. Tegmina, if developed, with a smooth false median vein in the median field, but more frequently entirely without it; costal and subcostal fields with a regular and distinct cross venation which is especially distinctly marked in the σ . φ ovipositor with dorsal valves narrowed toward the tip, which are equal to the ventral valves. σ epiphallus with a distinct thin median arc connecting its right and left sides and without accessory lobes; its sides are smooth close to the moveable horns.

The subfamily Acridinae is distributed nearly all over the world and is well represented in the Palearctic Region where a whole series of very grave pests of cultivated plants live, such as, for instance: Pararcyp-tera microptera (F.-W.), Doclostaurus (s. str.) maroccanus (Thunb.), Gomphocerus sibiricus (L.), Stauroderus scalaris (F.-W.), Chorthippus albomarginatus (De G.) and others.

Key to Genera of the Subfamily Acridinae

- 1(6). Hind femur with a spine on the dorso-external and dorso-internal genicular lobes (Figure 817).
- 2(5). Head large; its length considerably greater than that of the pronotum. Eyes situated in the anterior part of the head, the distance from the anterior margin of the eye to the fastigium is half the distance from the posterior margin of the eye to the anterior margin of the pronotum (Figure 818).

- 3 (4). Tars₁ with a large wide empodium between the claws, which nearly reaches the apices of the claws (Figure 819) or extends beyond that. Tegmina with the narrow apical half of the pre-costal field opaque and with dense irregular venation. 111. Acrida L.
- 4 (3). Tars₁ with a small narrow empodium between the claws, not quite reaching the middle of the claws (Figure 820). Transparent apical half of the pre-costal field of tegmina moderately wide, with regular oblique cross veins. 112 Truxalis Fabr.
- 5 (2). Head small, its length equal to, less than, or somewhat greater than that of the pronotum. Eyes situated nearly in the middle part of the head, the distance from the anterior margin of the eye to the fastigium being equal to or slightly less than the distance from the posterior margin of the eye to the anterior margin of the pronotum (Figure 821). 113. Gelastorhinus Br.-W.
- 6 (1). Hind femur, with rounded dorso-external and dorso-internal genicular lobes (Figure 822).
- 7 (12). Vertex strongly projecting forward, distance from anterior margin of the eye to the fastigium equal to or 1.25-3 times more than the greatest diameter of the eye (Figures 823-825).
- 8 (9). Head small, its length significantly less than that of the pronotum. Vertex strongly depressed, without a median carina, length of vertex taken from the anterior margin of the eye to its apex [i. e., to the fastigium] is equal to or hardly more than its greatest width (Figure 823). 114. Gonista I. Bol.
- 9 (8). Head large, its length 1.25-2.75 times more than that of the pronotum. Vertex convex, with distinct median carina, length of vertex taken from the anterior margin of the eye to the fastigium 1.25-2.25 times more than its greatest width (Figures 824-825).
- 10 (11). Head very large, its length 1.75 times more than that of the pronotum. Vertex very strongly projecting forward, the distance from the anterior margin of the eye to the fastigium 2-2.25 times more than the greatest diameter of the eye. Eyes situated in the posterior part of the head, the distance from the anterior margin of the eye to the fastigium is 1.5 times more than the distance from the posterior margin of the eye to the anterior margin of the pronotum (Figure 826). . . . 115. Aswatthamanus Kirby
- 11 (10). Head smaller, its length 1.25 times more than that of the pronotum. Vertex more slightly projecting forward; the distance from the anterior margin of the eye to the fastigium hardly more than the greatest diameter of the eye. Eyes situated in the middle part of the head, the distance from the anterior margin of the eye to the fastigium equals the distance from the posterior eye-margin to the anterior margin of the pronotum (Figure 827). 116. Kirmania Uv.
- 12 (7). Vertex short, moderately projecting forward, the distance from the anterior margin of the eye to the fastigium significantly less than the greatest diameter of the eye (Figure 828).
- 13 (34). Foveolae either absent, in which case the lateral fields of the fastigium are narrow, smooth, invisible from above, or the foveolae are situated under the margins of the fastigium and absolutely invisible when examined from above. Pronotum always with more or less distinct lateral carinae. Prothorax smooth, without median tubercle between the front coxae.



Figures 817-839

Original

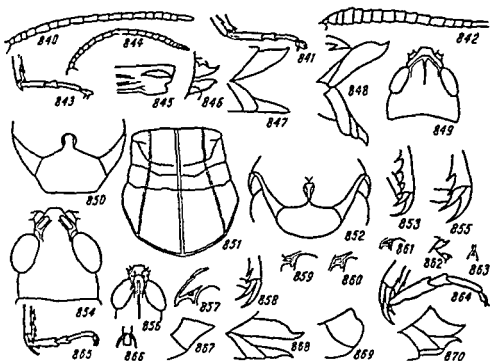
817—Acrida kozlovi Mistshenko sp. n., ♂, type, outer side, distal end, left hind femur; 818—A. kozlovi Mistshenko sp. n., ♂, type, head from side; 819—A. kozlovi Mistshenko sp. n., ♂, paratype, tip of right hind tarsus; 820—Truxallis nasuta (L.), ♂, tip of right hind tarsus; 821—Gelastorhinus edax Sauss., ♂, head from side; 822—Gonista sagitta (Uv.), ♂, outer side, distal end of left hind femur; 823—G. sagitta (Uv.), ♂, vertex from above; 824—Aswatthamanus iranicus (Uv.), ♂, vertex from above; 825—Kirmania exilis Uv., ♂, vertex from above; 826—Aswatthamanus iranicus Uv., ♂, head from side; 827—Kirmania exilis Uv., ♂, head from side; 828—Notostaurus albicornis rubripes Mistshenko subsp. n., ♂, paratype, head from side; 829—Paracinema tricolor bisignata (Charp.), ♂, right antenna from above; 830—Duronitella sogdiana Mistsh., ♂, right antenna from above; 831—Phlaeoba tenebrosa (Walk.), ♂, tip of right hind tarsus; 832—Duronitella angustata Mistshenko sp. n., ♂, paratype, tip of right hind tarsus; 833—Chrysochraon dispar dispar (Germ.), ♂, right antenna from above; 834—Ch. dispar dispar (Germ.), ♂, outer side, distal end, left hind femur; 835—Euthystira brachyptera brachyptera (Ocsk.), ♀, outer side, distal end, left hind femur; 836—Chrysochraon dispar dispar (Germ.), ♂, apex of right tegmen; 837—Ch. dispar dispar (Germ.), ♀, ovipositor from side; 838—Mongolotettix japonicus vittatus (Uv.), ♂, apex of right tegmen; 839—Euthystira brachyptera brachyptera (Ocsk.), ♀, ovipositor from side.

- 14 (25). Tegmina with a median false vein [i.e., vena spuria media] in the median field. Wings usually well developed, rarely abbreviated, the hind wing extends, though slightly, beyond the middle of the tegmen.
- 387 15 (16). Foveolae distinct, situated under the margins of the fastigium. 117. Ochrilidia Stål
- 16 (15). No foveolae.
- 17 (20). Antennae basally slightly flattened or filiform (Figure 829).
- 388 18 (19). Vertex short and wide, its greatest width before the eyes* is twice the length, taken from the fastigium to the line of the anterior margin of the eye. Pronotum with lateral carinae developed for all their length, the posterior transverse groove extending far behind the middle of the pronotum. 118. Parapleurodes Rme.
- 19 (18). Vertex long and narrow, its greatest width before the eyes is equal to or distinctly less than its length, taken from the fastigium to the line of the anterior margin of the eye. Pronotum with lateral carinae developed only in the anterior part, hardly reaching the anterior transverse groove, posterior transverse groove extending along the middle of the pronotum or in front of it. 119. Paracinema Fisch.
- 20 (17). Antennae basally flattened [or laminated] (Figure 830).
- 21 (24). Metasternum in both sexes with a distinct space between the lobes, its lobes either distinctly separated for all their length or in the ♂ they are contiguous only in the posterior part.
- 22 (23). Tarsi with a large wide empodium between the claws which reaches beyond the middle of the claws (Figure 831) 120. Phlaeoba Stål
- 23 (22). Tarsi with a small narrow empodium between the claws, which does not by far reach the middle of the claws (Figure 832) 121. Duroniella I. Bol.
- 24 (21). Metasternum without a space between the lobes, its lobes are contiguous for all their length. 122. Paragonista Will.
- 25 (14). Tegmina in both sexes always without the vena spuria media in the median field, in the ♂ usually slightly abbreviated, apically distinctly widened, in the ♀ usually greatly shortened, lobe-like, in forma macroptera well developed in both sexes. Wings in both sexes usually greatly abbreviated, rudimentary, in forma macroptera well developed.
- 26 (31). Antennae distinctly widened near the base, flattened (Figure 833). Pronotum either with parallel lateral carinae or carinae are only weakly divergent in the posterior part, not roundly curved. Hind femur with apex of the ventral genicular lobe, on the outer aspect pointed acute-angularly, or only weakly rounded (Figures 834-836).
- 27 (28). Pronotum with distinct lateral carinae, and median carina ♂ tegmina with rounded apex (Figure 836) ♀ ovipositor with short stout valves, dorsal valves with a distinct rounded notch on the dorso-external margin (Figure 837). 123. Chrysochraon Fisch.

* [Presumably above the eyes]

- 28 (27). Pronotum with obliterated lateral carinae, these being less developed than its median carina. ♂ tegmina with obliquely truncate or notched apex (Figure 838). ♀ ovipositor with long narrow valves; dorsal valves without the notch on the dorso-external margin (Figure 839).
- 29 (30). ♀ antennae not sword-shaped, only weakly widened at the base (Figure 840). Pronotum with lateral carinae developed for all their length. ♂ tegmina with irregular venation, the cross veins not making right-angled cells. Hind tarsi with a long first segment, its length distinctly greater than that of the third tarsal segment (Figure 841). 124. Euthystira Fieb.
- 30 (29). ♀ antennae distinctly sword-shaped, strongly widened in the basal part (Figure 842). Pronotum in the posterior part with lateral carinae less developed than in the anterior part; lateral carinae in the posterior part obliterated or absent. ♂ tegmina with regular venation, the cross veins making right-angled or square cells. Hind tarsi with first segment not so long, its length nearly equal to that of the third tarsal segment (Figure 843). 125. Mongolotettix Rehn
- 31 (26). Antennae filiform or weakly flattened but never widened at the base (Figure 844). Pronotum with distinctly roundly concave, not parallel, lateral carinae. Hind femur externally has broadly rounded or obtuse angled apex on the ventral genicular lobe (Figure 845).
- 32 (33). ♂ pronotum with straight, rounded, or hardly notched posterior margin. ♂ tegmina usually extend beyond the middle of the hind femora and are contiguous on the medio-dorsal line; sometimes lateral, not medio-dorsally contiguous, and then they reach the fifth abdominal tergite; in the ♀ they are wide, the length of a tegmen 1.25-2 times more than its greatest width. ♀ ovipositor either with short stout valves, the dorso-external margin of the dorsal valves having 2 notches (Figure 846), or with long narrow valves, when the ventral aspect is without a tooth at the base of the ventro-external margin (Figure 847). . . . 126. Podismopsis Zub.
- 33 (32). ♂ pronotum with a distinct triangular notch in the middle of the posterior margin. ♂ tegmina hardly extending beyond the posterior margin of the second abdominal tergite, never contiguous on the medio-dorsal line; in the ♀ they are narrow, the length of a tegmen 3.5-4 times more than its greatest width. ♀ ovipositor with short stout valves; the dorso-external margin of the dorsal valves with only one pre-apical notch; ventral valves with a distinct tooth near the base of the ventro-external margin (Figure 848). 127. Ptygonotus Tarb.
- 34 (13). Foveolae distinct, large, visible from above even if only partly (Figure 828); rarely inconspicuous, very small, triangular, then either the pronotum has no lateral carinae or the prothorax has a distinct median tubercle between the front coxae; sometimes there are no foveolae but the lateral fields of the fastigium (on which the foveolae would have been located) are wide, nearly flat, punctate, partially visible from above (Figure 849).
- 35(100). Tympanal organ on the first abdominal tergite well developed.

- 36(37). No foveolae. Median carina of pronotum intersected [or crossed] by 3 transverse grooves. Tegmina greatly abbreviated, lobe-like, lateral 128. Caucasippus Uv.
- 37(36) Foveolae distinct (Figure 828), rarely small, triangular, then the tegmina and wings are well developed, sometimes the foveolae are lacking, then the median carina of the pronotum is intersected [or crossed] by only one posterior transverse groove.
- 38(95). Pronotum with rounded triangularly projecting or straight truncate posterior margin. σ tegmina usually well developed but if abbreviated, are always contiguous on the medio-dorsal line.
- 39(42). Tegmina with strongly widened cubital field, its greatest width in the σ is 1.5 - 4 and in the φ 1.25 - 2 times more than the narrowest part of the apical part of the median field. Metasternum in both sexes in the posterior part with widely separated lobes (Figure 850).
- 390 40(41). Foveolae very weakly depressed, flat, with large punctures. Pronotum with weakly concave, nearly straight lateral margins (Figure 851) and the greatest width of the cubital field of the σ tegmina is 4, of the φ tegmina twice more than the narrowest part of the median field. Wings almost all darkened. 129. Arcyptera Serv.
- 41(40). Foveolae distinctly depressed, smooth, without punctures. Pronotum with lateral carinae strongly concave in the anterior part, sometimes they are nearly straight then the greatest width of the cubital field of the tegmen is only a little wider than the median field. Wings colorless. . . 130. Pararcyptera Tarb.
- 42(39) Tegmina with moderately widened cubital field, its greatest width in both sexes is equal to or distinctly less than the narrowest part of the apical part of the median field, sometimes it is hardly more than this width, then the lobes of the metasternum are contiguous in the posterior part (Figure 852)
- 43(48). Metasternum in both sexes in the posterior part with contiguous lobes (Figure 852), sometimes in the φ they are slightly separated, then either the head is large, strongly projecting forward, foveolae trapezoidal and the median field of the tegmina with vena spuria media, or the ventral inner spur of the hind tibia is large, 1.5-2 times longer than the dorsal spur on the same side (Figure 853).
- 44(47). Vertex with short lateral margins which never extend onto the occiput. Occiput usually smooth without a median carina (Figure 854).
- 45(46) Vertex wide, its width between the eyes twice more than the width of the frontal ridge between the antennae. Foveolae nearly entirely visible when seen from above. Pronotum with weak lateral carinae, obliterated in its middle part and intersected by 3 transverse grooves. Hind tibia with a short ventral spur on the inner aspect, its length 1.25-1.5 times more than that of the dorsal spur on the same side (Figure 855) 131. Ramburiella I. Bol.
- 46(45). Vertex narrow, its width between the eyes 1.25-1.5 times more than the width of the frontal ridge between the antennae. Foveolae only partly visible when seen from above. Pronotum with lateral carinae distinct for the whole length and usually intersected



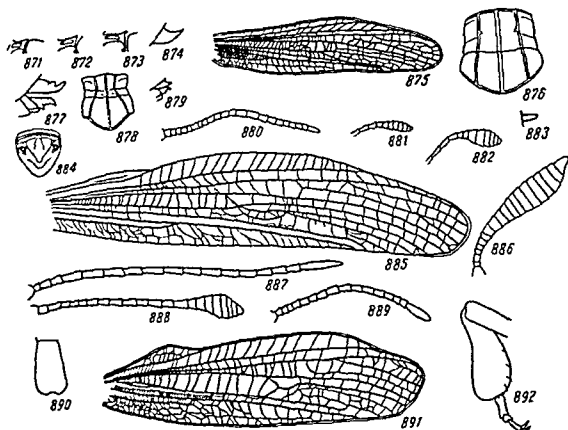
Figures 840-870 (Original)

840—Eurhystira brachyptera brachyptera (Ocsk.), ♀, right antenna from above; 841—Eu. brachyptera brachyptera (Ocsk.), ♂, left hind tarsus from side; 842—Mongolotettix japonicus vittatus (Uv.), ♀, right antenna from above; 843—M. japonicus vittatus (Uv.), ♂, left hind tarsus from side; 844—Podismopsis (s. str.) poppiusi femoralis Mirtschenko subsp. n., ♂, paratype, right antenna from above; 845—P. (s. str.) poppiusi femoralis Mirtschenko subsp. n., ♀, paratype, outer side of distal end of left hind femur; 846—P. (s. str.) poppiusi femoralis Mirtschenko subsp. n., ♀, paratype, ovipositor from side; 847—P. (Podismacris) insularis insularis Mirtschenko sp. et subsp. n., ♀, allotype, ovipositor from side; 848—Prygnotus semenovi antennatus Mirtschenko subsp. n., ♀, allotype, ovipositor from side; 849—Anabothrus monticola Mirtschenko gen. et sp. n., ♀, type, head from above; 850—Arcyptera fusca fusca (Pall.), ♂, metathorax; 851—A. fusca fusca (Pall.), ♂, pronotum from above; 852—Ramburiella turcomana (F.-W.), ♂, metathorax; 853—Sienohippus mundus (Walk.), ♀, internal side of apex of left hind tibia from side; 854—Ramburiella turcomana (F.-W.), ♂, head from above; 855—R. turcomana (F.-W.), ♀, internal side of apex of left hind tibia from side; 856—Aulacobothrus vittatus Uv., ♂, head from above; 857—Mecostethus grossus (L.), ♂, left foveola; 858—Doclostaurus (s. str.) brevicollis (Ev.), ♀, inner side of apex of left hind tibia from side; 859—Mizonocara robusta Mlnsh., ♂, left foveola; 860—Doclostaurus (s. str.) brevicollis (Ev.), ♂, left foveola; 861—Eremippus bey-bienkoi Mirtschenko sp. n., ♂, type, left foveola; 862—E. bey-bienkoi Mirtschenko sp. n., ♀, allotype, ovipositor from side; 863—E. bey-bienkoi Mirtschenko sp. n., ♂, type, tip of left hind tarsus; 864—Doclostaurus (s. str.) tartarus Uv., ♀, left hind tarsus from side; 865—Kasakia tarbinskii B.-Elenko, ♀, left hind tarsus from side; 866—Mecostethus grossus (L.), ♀, tip of left hind tarsus from side; 867—M. grossus (L.), ♂, subgenital plate from side; 868—M. grossus (L.), ♀, ovipositor from side; 869—Cerania nigricornis faeta (L. Bol.), ♂, subgenital plate from side; 870—C. nigricornis faeta (L. Bol.), ♀, ovipositor from side.

- only by the posterior transverse groove, often also intersected by the anterior transverse groove but never by all three. Hind tibia with long ventral spur on the inner aspect, its length nearly twice more than that of the dorsal spur on the same side (Figure 853) 132. Stenohippus Uv.
- 47(44). Vertex with long lateral margins which extend far over onto the occiput in the form of carinae. Occiput with distinct median carina which also extends onto the posterior part of the vertex (Figure 856) 133. Aulacobothrus I. Bol.
- 48(43). Metasternum in both sexes with lobes distinctly separated for the whole length. Tegmina usually without the vena spuria media in the median field, sometimes with it, then either the head is small or the foveolae are very indistinct, triangular (Figure 857). Hind tibia with a small ventral spur on the inner aspect which is slightly greater than the dorsal spur on the same side (Figure 858).
- 392 49(64). Foveolae wide and short, the length of a pit is equal to or 1.25-1.5 times more than the greatest width (Figures 859, 860); sometimes the foveolae are narrow, trapezoidal, or triangular (Figures 857, 861) then the median field on the tegmina always has the vena spuria media and the ♀ has trapezoidal foveolae and the dorso-external margin of the dorsal valves of the ovipositor always has a distinct pre-apical notch (Figure 862).
- 50(59). Foveolae distinct, large, right-angled or trapezoidal (Figures 859 to 861). Empodium between the tarsal claws very small, either far from or barely reaching the middle of the claws (Figure 863)
- 51(58). Frontal ridge wide and flat, hardly depressed near the median ocellus; its margin obliterated. Pronotum with 3 well developed transverse grooves, always extending from the disk of the pronotum onto the lateral lobes.
- 52(57). Hind tarsi with a long first segment, equal to the other 2 segments (Figure 864).
- 53(54). Occiput smooth, without a median carina 134. Doclostaurus Fieb.
- 54(53). Occiput rugose, with distinct median carina.
- 55(56). Pronotum with a distinct light x-shaped marking, its lateral carinae converging distinctly in the anterior and posterior parts toward its middle. ♂ tegmina with a distinct vena spuria in the pre-costal field. Hind legs with distinct short hairs 135. Notostaurus B.-Bienko
- 56(55). Pronotum without light x-shaped marking, its lateral carinae straight, nearly parallel to the median carina, in the posterior and anterior parts. ♂ tegmina without vena spuria in the pre-costal field. Hind legs with dense long hairs 136. Mizonocara Uv.
- 57(52). Hind tarsi with short first segment, 2/3 the length of the other two segments (Figure 865) 137. Kazakia B.-Bienko
- 58(51). Frontal ridge narrow, strongly depressed, its margin distinct. Pronotum with only the posterior transverse groove well developed, this intersecting the lateral carinae and extending from the pronotal disk onto the lateral lobes, the 2 anterior transverse grooves usually weak, sometimes hardly noticeable, never intersecting the lateral carinae, though very rarely in the ♂ the middle groove does intersect them 138. Eremippus Uv.

- 59(50). Foveolae indistinct, very small, triangular. Empodium between the tarsal claws large, extending far beyond the middle of the claws (Figure 866).
- 60(63). Antennae in both sexes rather short; the length of a separate middle segment of the antenna is 2-3 times more than its greatest width. Subgenital plate of σ long, conical, sharply narrowed toward the apex (Figure 867). φ ovipositor with long narrow valves, the length of the dorsal valves 3 times more than the greatest height (Figure 868).
- 61(62). Tegmina leathery, with dense venation in the apical part; the median field with a vena spuria extending caudad of its middle; therefore its anterior part is wide, with dense venation and in width it is considerably more than the greatest width of the posterior part of the median field 139. *Mecostethus* Fieb.
- 62(61). Tegmina transparent, with sparse venation in the apical part; the median field has a vena spuria extending along its middle; its anterior part is narrow, with sparse venation and in width it is equal to the greatest width of the posterior part of the median field 140. *Parapleurus* Fisch.
- 63(60). Antennae in both sexes very long, the length of a separate middle segment is 4 times more than its greatest width. Subgenital plate in the σ short, rounded, bluntly conical (Figure 869). φ ovipositor with short wide valves, the length of the dorsal valve only 1.5 times more than the greatest height (Figure 870) 141. *Ceracris* Walk.
- 64(49). Foveolae either lacking or long and narrow; the length of a pit being 2-4 times more than its greatest width (Figures 871, 872). Tegmina without vena spuria media in the median field; sometimes in the φ it is distinct, then the foveolae are trapezoidal (Figure 873) and the dorsal external margin of the dorsal valves of the ovipositor have no pre-apical notch (Figure 874).
- 65(74). Tegmina with straight anterior margin; precostal field of the tegmina not basally widened, gradually narrowed toward the apex and always extending far beyond the middle of the tegmina (Figure 875); tegmina usually well developed but if abbreviated the tympanal organ on the first abdominal tergite is not widely exposed [or wide open, uncovered, etc.] but is in the form of a narrow groove-like opening.
- 66(67). No Foveolae 142. *Anabothrus* g.n., Mistsh.
- 67(66). Foveolae distinct.
- 68(69). σ Pronotum wide with weakly concave lateral carinae; its greatest width between the lateral carinae only 1.25-1.5 times more than its narrowest part (Figure 876). Antennae in the σ always without a club on the apex. φ ovipositor on the dorso-external margin of the dorsal valves with a distinct tooth in the middle (Figure 877). 143. *Stenobothrus* Fisch.
- 69(68). σ pronotum narrower with strongly concave lateral carinae; its greatest width between the lateral carinae 2-3 times more than its narrowest part (Figure 878), sometimes 1.5 times, then the antennae always have a distinct club on the apex. φ ovipositor with only a rounded pre-apical notch (Figure 879) on the dorso-external margin of the dorsal valves.

- 70 (71). Antennae filiform in both sexes, without a club or without a widening on the apex (Figure 880) 144. Omocestus I. Bol
- 71 (70). Antennae in both sexes either with a distinct clavate widening on the apex (Figure 881) or in the ♂ with a distinct club (Figure 882).
- 72 (73). Head in both sexes moderately protruding in front and on the sides, its length distinctly less than [that of] the pronotum, its greatest width nearly equal to the greatest width of the pronotum ♀ tegmina well developed reaching or just not reaching the distal end of hind femora. ♂ cerci bluntly conical (Figure 883)
- 394 73 (72) Head in both sexes strongly protruding in front and on the sides, its length distinctly greater than [that of] the pronotum, its greatest width slightly greater than the greatest width of the pronotum ♀ tegmina greatly abbreviated, hardly extending beyond the base of the hind femora. ♂ cerci short, with a depression in front of the pointed apex (Figure 884) 145. Myrmeleotettix I Bol
- 74 (65) Tegmina with a distinct notch in the basal part of the anterior margin, the pre-costal field distinctly [or sharply] widened close to the base, after that sharply narrowed and usually not extending far beyond the middle of the tegmina (Figure 885), sometimes in brachypterous species, it reaches the apex of the tegmina, then the tympanal organ is wide-open
- 75 (76). Antennae in both sexes wide and short, far from reaching the posterior margin of the pronotum, beginning with the basal segments gradually and strongly widened (especially in the ♂) toward the weakly pointed apex, strongly flattened in the apical half (Figure 886) 147. Phlocerus F -W.
- 76 (75) Antennae in both sexes long and slender, filiform or with a distinct club at the apex (Figure 887, 888), usually extending far beyond the posterior margin of the pronotum, sometimes in the ♀ only reaching that margin
- 77 (94) Labium in both sexes with small rounded external lobes which do not resemble a beak and do not extend beyond the middle of the prothorax.
- 78 (87). Antennae in both sexes with a distinct club on the apex (Figure 888), sometimes filiform or only widened in the apical part (Figure 889), then the anterior margin of the prothorax in both sexes has a distinct median tubercle, the posterior margin of the last abdominal tergite in the ♂ and the margins of its anal plate are black and the posterior margin of the subgenital plate in the ♀ usually has a distinct median notch (Figure 890)
- 79 (80). Pronotum with the posterior transverse groove extending along the middle of the pronotum, therefore the anterior part of the pronotum is the same length as its posterior part
- 80 (79) Pronotum with the posterior transverse groove extending far beyond the middle of the pronotum therefore the anterior part of the pronotum is considerably longer than the posterior part. 148. Gomphocerippus Rob
- 81 (82). Tegmina with distinctly converging anterior and posterior cubital veins which are sometimes fused with each other here and there, cubital field very narrow, its width at the middle of the median field 4-7 times less than the greatest width of the median field,

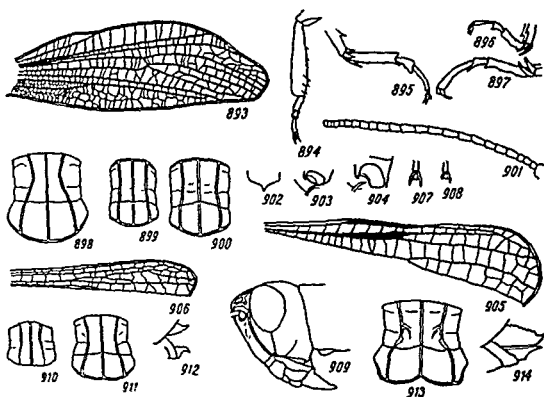


Figures 871-892

(No. 884 after Ramme; others original)

- 871—Myrmeleotettix palpalis Zub., ♀, left foveola; 872—Chorthippus longicornis aemulus Mistshenko subsp. n., ♀, allotype, left foveolā; 873—Ch. dorsatus dichrous (Ev.), ♀, foveola; 874—Ch. dorsatus dichrous (Ev.), ♀, left dorsal valve of ovipositor from side; 875—Omocestus znojko Mistshenko sp. n., ♂, type, right tegmen; 876—Stenobothrus tadzhicus Mistshenko sp. n., ♂, type, pronotum from above; 877—S. tadzhicus Mistshenko sp. n., ♀, allotype, ovipositor from side; 878—Omocestus znojko Mistshenko sp. n., ♂, type, pronotum from above; 879—O. znojko Mistshenko sp. n., ♀, allotype, ovipositor from side; 880—O. ventralis (Zett.), ♂, left antenna from above; 881—Myrmeleotettix maculatus (Thunb.), ♂, apex of right antenna from above; 882—M. antennatus (Fieb.), ♂, apex of right antenna from above; 883—M. maculatus (Thunb.), ♂, left cercus from side; 884—Microhippus turcicus Rme., ♂, tip of abdomen from above; 885—Chorthippus biguttulus meridionalis Mistsh., ♂, right antenna from above; 886—Phlocerus savenkoae Mistsh., ♂, right antenna from above; 887—Mesasiippus kozhevnikovi kozhevnikovi (Tarb.), ♂, right antenna from above; 888—Dasyhippus barbilpes (F.-W.), ♂, right antenna from above; 889—D. barbilpes (F.-W.), ♀, right antenna from above; 890—Mesasiippus barsukien sis Mistshenko sp. n., ♀, allotype, subgenital plate; 891—Gomphocerus sibiricus turkestanicus Mistshenko subsp. n., ♂, paratype, right tegmen; 892—G. sibiricus turkestanicus Mistshenko subsp. n., ♂, paratype, left fore tibia and tarsus from side.

- sometimes the cubital field is almost absent (Figure 891). Fore tibia in the ♂ strongly pyriformly swollen (Figure 892)
- 82(81). 149. Gomphocerus Thunb.
Tegmina with anterior and posterior cubital veins distinctly separated, cubital field moderately wide, its greatest width nearly equal to, slightly less than, or slightly more than the greatest width of the median field (Figure 893). Fore tibia in the ♂ not pyriformly thickened but if thickened, then very slightly so (Figure 894).
- 83(84) Hind tarsi in both sexes with a long first segment, considerably longer than the other 2 segments together (without the claws), (Figure 895), or sometimes only equal to them. ♂ antennae with a distinct club on the apex, the greatest width of the club 4 times more than the narrowest part of the antenna. In the ♀
- 395 the length of a foveolae 3-5 times more than the greatest width, antennae always distinctly thickened near the apex and the tegmina always well developed . . 150. Dasyhippus Uv.
- 84(83) Hind tarsi in both sexes with a short first segment; its length is equal to or distinctly less than that of the other 2 segments together, (without the claws). (Figures 896, 897). Antennae in both sexes filiform, not widened at the apex, or they have a weak apical thickening the width of which in the ♂ is only 1.25-2
- 396 times more than the thickness of the antenna itself. ♀ tegmina usually greatly abbreviated but if they are well developed then the length of the foveolae is only 2.25-2.5 times more than the width.
- 85(86). ♂ antennae with a distinct widening on the apex Pronotum in both sexes with strongly angularly or arcuately concave lateral carinas in the anterior part, the greatest width of the posterior of the pronotum in the ♂ between the lateral carinas is significantly more than the greatest width of its anterior part (Figure 898) ♂ tegmina always reaching the tip of the abdomen, in the ♀ they are always contiguous [or they always overlap each other] on the medio-dorsal line 151. Aeropedellus Heb.
- 86(85) ♂ antennae nearly filiform. Pronotum in both sexes with nearly parallel lateral carinas (Figure 899), sometimes with weakly concave carinas in the anterior part (Figure 900) then in the ♂ the greatest width of the posterior part of the pronotum between the lateral carinas is equal to or nearly equal to the greatest width of its anterior part (Figure 899) and the tegmina do not reach by far the tip of the abdomen in the ♀ the tegmina are distinctly separated on the medio-dorsal line
- 87(78). 152. Mesasippus Tarb.
Antennae in both sexes filiform, without a club and without a widening at the apex (Figure 901). Prothorax in both sexes with a smooth anterior margin without the median tubercle Posterior margin of the last abdominal tergite and the margins of the anal plate in the ♂, of the same color as the tip of the abdomen. Subgenital plate in the ♀ usually with a triangular process in the middle of the posterior margin (Figure 902).



Figures 893-914
(No. 910 after Chang; others original)

893—*Aeropedellus variegatus borealis* Mistshenko subsp. n., ♂, type, right tegmen; 894—*Ae. reuteri* (Mir.), ♂, left fore tibia and tarsus from side; 895—*Dasyhippus barbipes* (F.-W.), ♂, left hind tarsus from side; 896—*Mesasippus scitus* Mistshenko sp. n., ♂, type, left hind tarsus from side; 897—*M. nudus* (Um.), ♂, left hind tarsus from side; 898—*Aeropedellus variegatus gelidus* Mistshenko subsp. n., ♂, type, pronotum from above; 899—*Mesasippus barsukiensis* Mistshenko sp. n., ♂, type, pronotum from above; 900—*M. geophilus* (B.-Blenko), ♂, pronotum from above; 901—*Chorthippus tadzhicus* Mistshenko sp. n., ♂, type, left antenna from above; 902—*Ch. tadzhicus* Mistshenko sp. n., ♀, allotype, posterior margin of subgenital plate; 903—*Pezohippus callosus* (Uv.), ♂, tympanal organ; 904—*Chorthippus vagans* (Ev.), ♂, tympanal organ; 905—*Stawoderus scalaris scalaris* (F.-W.), ♂, anterior part of right wing; 906—*Chorthippus mollis mollis* (Charp.), ♂, [fore] anterior part of right wing; 907—*Ch. tadzhicus* Mistshenko sp. n., ♂, type, tip of left middle tarsus from above; 908—*Euchorthippus pulvinatus pulvinatus* (F.-W.), ♂, tip of left middle tarsus from above; 909—*Xenochella zarudnyi* Uv., ♀, head from side; 910—*Anaptygus uvarovi* (Chang), ♂, pronotum from above; 911—*Saxetophilus petulans* Um., ♂, pronotum from above; 912—*S. petulans* Um., ♀, ovipositor from side; 913—*Ptygippus brachypterus* Mistshenko gen. et sp. n., ♀, type, pronotum from above; 914—*P. brachypterus* Mistshenko gen. et sp. n., ♀, type, ovipositor from side.

- 88(89). ♀ tegmina not contiguous on the medio-dorsal line, strongly abbreviated. ♀ pronotum with nearly straight posterior margin, which does not project. Tympanal organ on the first abdominal tergite in both sexes nearly horizontal (Figure 903) 153. Pezohippus B.-Bienko
- 89(88). ♀ tegmina usually well developed, usually contiguous on the medio-dorsal line, sometimes (in Chorthippus fallax Zub. and Ch. elbrusianus B.-Bienko) abbreviated, separated, then the posterior margin of the pronotum projects angularly. Tympanal organ on the first abdominal tergite in both sexes nearly vertical (Figure 904)
- 90(91) Wings (hindwings!) well developed, costal and subcostal veins distinctly curved in the apical third, the subcostal field distinctly widened in the middle, radial vein greatly thickened around the middle (Figure 905) 154. Stauroderus I. Bol.
- 91(90). Wings (hindwings!) either greatly abbreviated or well developed; costal and subcostal veins straight, the subcostal field not widened in the middle, the radial vein slender, not thickened (Figure 906).
- 92(93). Tarsal claws in both sexes symmetrical, equal to each other (Figure 907) 155. Chorthippus Fieb.
- 93(92). Tarsal claws in both sexes asymmetrical, the inner claws of the front tarsi distinctly smaller than the outer claw, and the outer claw of the middle and hind tarsi distinctly smaller than the inner claw (Figure 908) 156. Euchorthippus Tarb.
- 94(77). Labium with very large pyramidal external lobes, resembling beaks and extending beyond the middle of the prothorax (Figure 909) 157. Xenocheila Uv.
- 95(38) Pronotum with a distinct obtuse-angular notch in the middle on the posterior margin, sometimes in the ♂ the notch is very weak, then the tegmina are greatly abbreviated, lateral, never contiguous on the medio-dorsal line.
- 397 96(97) Foveolae narrow and long, the pit is 4 times longer than its greatest width. Median ocellus very small. Pronotum with lateral carinas obliterated at the posterior margin, in the ♂ the lateral carinas are nearly parallel in the posterior part; the posterior part is long and narrow, its greatest width between the lateral carinas is 1.25 times more than the length of that part, taken along the median carina (Figure 910). 158. Anaptygus Mistsh. g. nov.
- 398 97(96). Foveolae wider and shorter, the pit is 2-2.5 times longer than its greatest width. Median ocellus well developed, of the same size as the lateral ocelli. Pronotum with lateral carinas distinct at the posterior margin, lateral carinae in the ♂ distinctly divergent in the posterior part, posterior part short and wide, its greatest width between the lateral carinae nearly twice more than the length of this part taken along the median carina (Figure 911)
- 98(99). Eyes in both sexes large, vertical diameter of the eye in the ♂ 1.5 times greater than the subocular groove, in the ♀ equal to it. Pronotum in both sexes with regular, weakly arcuately concave, lateral margins (Figure 911). ♀ ovipositor with short valves (Figure 912) 159. Saxetophilus Um.

- 99 (98). ♀ eyes small; vertical diameter of the eye in the ♀ significantly less than the subocular groove. ♀ pronotum with irregular lateral carinae, which are sinuous in the middle part (Figure 913). ♀ ovipositor with long valves (Figure 914). ♂ not known 160. Ptygippus g. nov., Mistsh.
- 100 (35). Tympanal organ on the first abdominal tergite lacking, or very strongly reduced and hardly perceptible.
- 101 (106). Tegmina in the ♂ extending beyond the base of the hind femora in the ♀ they do not quite reach the posterior margin of the metanotum.
- 102 (105). Lateral ocelli in both sexes distinct, well developed. ♂ tegmina extending beyond the base of the hind femora; in the ♀ very short; the length of a tegmen nearly equal or 2.5 times longer than its width.
- 103 (104). Pronotum in both sexes usually with projecting rounded posterior margin, sometimes in the ♀ it is hardly notched. ♂ tegmina extending beyond the base of the hind femora, contiguous [or overlapping each other] on the medio-dorsal line; in the ♀ wide, with a rounded apex, not extending beyond the posterior margin of the metanotum; length of a tegmen hardly more than its greatest width 161. Eclipophleps Tarb.
- 104 (103). ♀ pronotum with a distinct obtuse-angular median notch on the posterior margin. ♀ tegmina narrow with a pointed apex, reaching the middle of the first abdominal tergite; length of a tegmen 2.5 times more than its greatest width. ♂ not known 162. Oreoptigonotus Tarb.
- 105 (102). Lateral ocelli of the ♀ not developed. ♀ tegmina narrow; the length of a tegmen 4-5 times more than its width at the base. ♂ not known. 163. Hypernephia Uv.
- 106 (101). Body entirely apterous, no tegmina or wings. 164. Dysanema Uv.

111. Genus Acrida L.

Jakobson, 1905:164, 175, 213 (partim); Kirby, 1914-95, 97; Chopard, 1922:141; Uvarov, 1927a:55, 59; Tarbinskii, 1940:22, 159, 165; Tarbinskii, 1948:111, 115; Dinzh, 1949b:15. — Gryllus Acrida Linnaeus, 1758, Syn. Nat., Ed. X, 1:427 (partim). — Tryxalis Brunner-Wattenwyl, 1882:83, 87 (partim); Shitaki, 1910: 5, 6 (nec Fabricius); Obenberger, 1926-61, 71 (nec Fabricius).

Type genus: Acrida turrata [L.], Africa.

- 399 Head large, conical; its length greater than the length of the pronotum. Eyes situated in the anterior part of the head; distance from the anterior margin of the eye to the fastigium is one half that from the posterior eye-margin to the anterior margin of the pronotum. Antennae sword-shaped. Precostal field of tegmen narrow, not transparent, with dense irregular venation in the apical half. Apex of tegmina and wings acute-angular. Empodium large, broad, nearly reaching or even extending beyond the apex of the claws. Dorsal genicular lobe on the external and internal sides of the hind femur with a spine.

About 40 species, distributed chiefly in Africa, are known, some of them live in southern Europe, in southern and temperate Asia (north to Kazakhstan and Maritime Territory), and in Australia.

In a recently published paper by Dirsh (1949b) devoted to a revision of western Palearctic species of *Acrida* L., 4 species (3 absolutely correctly so') were restored, which had been previously reduced to synonymy, and a great number of new species were established. Unfortunately, the author of this paper clearly overestimated the the specific meaning [or significance] of the characters which he utilized for determining new species, most of them extremely variable, which also was not taken into account by him to a sufficient degree. As a result of this, it is impossible to determine several of the species from the keys set up by him because they were based not only on specific characters but also on features which characterize the morphological variability of different species. On studying the collection of the Zoological Institute of the Ac. Sc., U.S.S.R. (in which large series of many long-established species and Dirsh's species found in the same localities and in some cases even collected by one and the same person, are kept) we arrived at the conclusion that the following are synonyms of *A. oxycephala* (Pall.) *A. caspica* Dirsh, *A. turca* Dirsh, *A. persa* Dirsh, and *A. deserti* Uv., and that the following are synonyms of *A. anatolica* Dirsh *A. mediterranea* Dirsh and to all appearances its subspecies, and *A. caucasica* Dirsh

- 1 (12). Vertex in both sexes long, strongly projecting forward, the distance taken from the anterior eye-margin to the fastigium being equal to the greatest diameter of the eye (in top view, Figure 915), sometimes it is barely less than this diameter, then in the ♀ the 3 apical segments of the maxillary palp are equal to each other, and in the ♂ the empodium between the tarsal claws reaches the apices of the claws or extends beyond them
- 2 (11). Lateral lobes of pronotum in both sexes with rounded postero-ventral angle, posterior margin of the lobes in the lower part smooth. Mesosternum in the ♀ with a wide space between the lobes, its narrowest part being 1/2-2/3 its length. Subgenital plate in the ♀ with a weakly or moderately developed median process on the posterior margin which does not reach or just reaches the apex of the lateral processes (Figures 916, 917).
- 3 (10). Pronotum in the ♂ with lateral carinae distinctly divergent toward the posterior margin, greatest width of pronotum considerably greater than its least width [i.e., narrowest part] ♀ subgenital plate with well developed median process on the posterior margin, situated on a level with the lateral processes (Figure 917).
- 4 (9). Antennae in both sexes short and stout, length of a separate middle segment of the antenna 1.25-1.5 times more than its greatest width, sometimes twice as great as that width, then in the ♀ the pronotum dorsally near the anterior margin and in the posterior part with dense black little points [? punctures], its median portion nearly smooth, with small granules, but in the ♂ the dorsal aspect of the subgenital plate is strongly arcuately concave (Figure 918).
- 5 (6). Metasternum in the ♀ with a wide space between the lobes, its narrowest part being distinctly greater than its length Subgenital plate in the ♂ with a straight dorsal margin (Figure 919) ♂ antennae with quadrilateral median segments, length of a single segment 1.5-1.75 times more than its greatest width. Mesosternum in the ♂ with a narrow space between the lobes, its narrowest part 2/5-1/2 its length.

- ♀ subgenital plate with 3 triangular rounded processes on the posterior margin, the middle process reaching the apex of the lateral processes. Length of body in the ♂ 33.8-39.4, ♀ 56.4-63.5; tegmina ♂ 30.2-33.1, ♀ 44.4-53.4 mm. —North China, Ningsia: Tengyuanying, northern Alashan, Alashan desert, Fumafu. (Type from Tengyuanying) 1. *A. kozlovi* Mistshenko sp. n.†
- 6(5). Metathorax in the ♀ with a narrower space between the lobes; its narrowest part being equal to or distinctly less than its length. ♂ subgenital plate with strongly arcuately concave dorsal margin (Figure 918).
- 7(8). Mesosternum in the ♂ with a narrow space between the lobes; its narrowest part one third its length. ♀ tympanal organ on the first abdominal tergite with a distinct tympanal lobe (Figure 920). ♂ antennae slender; the length of a separate median segment of the antenna 1.5-2 times more than its greatest width. ♀ subgenital plate on the posterior margin with 3 triangular rounded processes, the median process reaching the apices of the lateral processes. Length of body ♂ 32.0-37.5, ♀ 60.3-71.6 mm; tegmina ♂ 31.0-32.1, ♀ 49.5-53.5 mm. —Japan: Unzen and Itoman; island of Okinawa: Naha. (Type from Unzen). 2. *A. granulata* Mistshenko sp. n.
- 8(7). Mesosternum in the ♂ with a wider space between the lobes; its narrowest part is half its length. Tympanal organ in the ♀ on the first abdominal tergite without a tympanal lobe (Figure 921). ♂ antennae stout, the length of a separate median segment of the antenna 1.5 times more than its greatest width. ♀ subgenital plate with 3 triangular rounded processes on the posterior margin, moreover the median process reaches the apex of the lateral processes. Length of body ♂ 34.5-37.0, ♀ 52.0-69.3; tegmina ♂ 27.33, ♀ 41.5-54.5 mm. Maritime Territory: station of Ulanginskaya, Voroshilov [Ussuriisk]; northern China: Manchuria (Kungchuling south of Kaiyuancheng, Chengkiatun and Silatula near Maimakal, Kuokiatien near Mukden), Port Arthur. (Type from Kungchuling)
- *3. *A. incallida* Mistshenko sp. n.
- 9(4). Antennae in both sexes longer and slenderer; length of a separate median segment of the antenna 2-2.5 times more than its greatest width. ♀ pronotum dorsally with uniformly scattered dense rather coarse granules. ♂ subgenital plate with weakly concave nearly straight dorsal aspect (Figure 922) . . . *4. *A. koreana* Ikonn.
- a(b). Antennae in both sexes stouter; length of a separate median segment of the antenna twice more than its greatest width. Pronotum in both sexes with a nearly straight dorsal rugula on the lateral lobes which is not parallel to the lateral carina of the pronotum. Body length ♂ 41.2, ♀ 62.5-67.2 mm; tegmina ♂ 36, ♀ 52.5-55.6 mm. Korea. 4a. *A. koreana koreana* Ikonn.

—*turrita* var. *koreana* I. Brossikov, 1913, Über die von P. Schmidt aus Korea mitgebrachten Acrididen II, Figure 2.

† Named in honor of P.K. Kozlov, the well-known Russian traveler.

- b (a). Antennae in both sexes slenderer; length of a separate median segment of an antenna 2.5 times more than the greatest width. Pronotum in both sexes in the anterior part of the lateral lobes, with an arcuately curved dorsal rugula parallel to the lateral carina of pronotum. Body length ♂ 40.8-49.2, ♀ 66.5-81.5 mm, tegmina ♂ 30.5-38.5, ♀ 54.3-63.7 mm.—Sakhalin, Japan Unzen, Mt. Takaiwa, Tsurugi (Is. of Honshu), Obana (Is. of Kyushu), Nagasaki, Misaki (Is. of Kyushu), Isl. Okinawa Naha. (Type from Tsurugi). 4b. A. koreana antennata Mistshenko subsp. n.

—nasuta Shiraki, 1910 2,6 (Tryxalis) (nec Linnaeus) (partim)

- 10 (3) Pronotum in the ♂ with nearly parallel lateral carinas, hardly diverging toward the posterior margin, greatest width of pronotum hardly more than its narrowest part. ♀ subgenital plate with a weakly developed median process on the posterior margin which is far from reaching the apices of the lateral process (Figure 916) Body length ♂ 39.0-40.5, ♀ 69-70 mm tegmina ♂ 29.5-33.0, ♀ 55-57 mm. North China Manchuria. . 5. A. csikii I. Bol.

I Bolivar in Zichy, 1901, Dritte asiatische Forschungsreise, II 228, Jakobson 1905 176 213.

- 11 (2). Lateral lobes of pronotum in the ♀ with a pointed postero ventral angle, posterior margin of lobes in the ventral part with several pointed tubercles. Mesosternum in the ♀ with a narrow space between the lobes, its narrowest part $2/7-1/3$ the length. Subgenital plate in the ♀ with a strongly developed median process on the posterior margin, which projects forward more strongly than the lateral process (Figure 923). ♂ not known Body length ♀ 82.9-83.6, tegmina ♀ 63.5-64.2 mm.—China Kiangsu, Kwangtung 6. A. chinensis (Westw.)

Westwood in Donovan, 1842 Natural History of the Insects of China 22 tab. 10, Figure 1 (Truxalis)

- 12 (1). Vertex short in both sexes, moderately projecting forward, the distance taken from the anterior eye-margin to the fastigium being less than the greatest diameter of the eye (in top view) (Figure 924). Maxillary palpus in the ♀ with a large apical segment, considerably longer than the preceding segment, the latter being equal to the third [segment]. Empodium between the claws of the tarsi in the ♂ distinctly not reaching the apex of the claws.
- 13 (18). Wings transparent, not darkened in the basal half.
- 14 (17). Tegmina in both sexes wider, apical third of tegmina not recurved caudad [or turned backward], posterior margin of tegmina straight in the apical third. Sometimes the tegmina have the apical third weakly recurved caudad and their posterior margins in the apical third are weakly arcuately concave, then the ♂ vertex is narrower, its greatest width exceeds the greatest width of the antennae 1.25 times, and the ♀ antennae have a transverse nearly quadrate sixth segment.

- 2 15(16). σ pronotum with a long posterior part; length of the latter is considerably greater than the greatest width of the pronotum between the lateral carinae. σ mesosternum with a narrow space between the lobes; its narrowest part is $1/4-1/3$ the length. φ subgenital plate with a short median process on the posterior margin which is far from reaching the apices of the lateral processes (Figure 925). Body length σ 29.6-32.4, φ 49.8-61.0 mm; tegmina in the σ 27.4-33.2, φ 40.0-49.2 mm.—Southeastern European part of the U.S.S.R., the Caucasus, Kazakhstan, Middle Asia; Iran, northern Afghanistan, western China; slightly injurious in southern Tadzhikistan to young crops of alfalfa, melons [or cucurbits], and volatile-oil bearing plants. (Figure 927).

*7. A. oxycephala (Pall.)—Akrida pustynnaya (Desert Acrida)

Tarbinskii, 1940:22, 166, Figure 136; Tarbinskii, 1948:115, Figure 149, Dirsh, 1949b:22, 41, Figures 17, 36, 65, 75, 97.—oxycephalus Pallas, 1771, Reise Russischen Reiches, 1:418, 423, 468 (Gryllus).—turrita Jakobson, 1905:176, 214 (partim); Uvarov, 1925b:40 (partim).—turrita deserti Uvarov, 1916, Russkoe entomologicheskoe obozrenie, XVI:10, 11, Figure 1; Uvarov, 1927a:60, Figure 20.—caspica Dirsh, 1949b:21, 45, Figures 20, 69, 79, 101 (syn. nov.).—turca Dirsh, 1949b:22, 44, Figures 39, 68, 78, 99 (syn. nov.).—deserti Dirsh, 1949b:22, 42, Figures 18, 37, 66, 76, 98.—pessa Dirsh, 1949x:22, 44, Figures 19, 38, 67, 77, 100 (syn. nov.).

Biology: Mishchenko, 1949b:154, Mishchenko, 1950, Doklady AN SSSR (novaya seriya), LXXI, 4:789, 790.

- 403 16(15). σ pronotum with a short posterior part; its length nearly equals the greatest width of the pronotum between the lateral carinae. Mesothorax in the σ with a wider space between the lobes; its narrowest part twice more than the length. φ subgenital plate on the posterior margin with moderately developed median process, reaching the apices of the lateral processes (Figure 926). Body length σ 30-32, φ 50-60 mm; tegmina σ 27.4-31.3, φ 40-49 mm.—Southern European part of the U.S.S.R.; southern Europe, Asia Minor. Slightly injures tau-saghyz in the Ukraine.

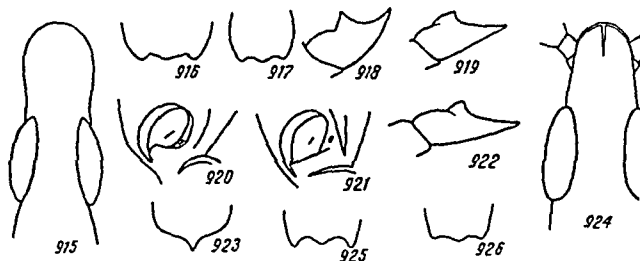
*8. A. anatolica Dirsh.

Dirsh, 1949b:21, 34, Figures 11, 31, 49, 59, 91.—nasuta Brunner-Wattenwyl, 1882:88 (Tryxalis) (partim); Shiraki, 1910:2, 60 (Tryxalis) (partim); Oberberger, 1926:71, tab. 11, Figures 79-80 (Tryxalis) (partim).—turrita Jakobson, 1905:176, 214, plate II (partim); Kirby, 1914:98 (partim); Tarbinskii, 1940:22, 165, 166 (partim); Tarbinskii, 1948:115 (partim).—turrita turrita Uvarov, 1927a:60, Figure 19 (partim).—caspica Dirsh, 1949b:22, 40, Figures 16, 35, 64, 74, 96 (syn. nov.).—mediterranea mediterranea Dirsh, 1949b:35, 36, Figures 13, 32, 60, 70, 72 (syn. nov.).—mediterranea bosphorica Dirsh, 1949b:35, 37, Figures 12, 61, 71, 93.—mediterranea lombardica Dirsh, 1949b:35, 38, Figures 14, 33, 62, 72, 94.

Biology: Dovnar-Zapol'skii, 1926:160 (as A. turrita L.).

- 17(14). Tegmina in both sexes narrow, with apical third curved caudad; posterior margin of tegmina arcuately concave in the apical third. σ vertex wide; its greatest width 1.5 times more than the greatest width of the antenna. φ antennae with an elongated sixth segment. Body length σ 32.5-36.4, φ 50.0-54.5 mm; tegmina σ 26.0-26.7, φ 40-41 mm.—Hungary, Roumania. .9. A. ungarica (Herbst)

Dirsh, 1949b:22, 39, Figures 15, 34, 63, 73, 95.—ungaricus Herbst in: Fuenli, 1786, Arch. Ins., 7-8:192, tab. II, Figure 7 (Tryxalis).—nasuta Brunner-Wattenwyl, 1882:88 (Tryxalis) (partim).



Figures 915-926
Original

915—Acrida kozlovi Mistshenko sp. n., ♀, allotype, head from above, 916—A. csikii I. Bol., ♀, paratype, posterior margin of subgenital plate; 917—A. incallida Mistshenko sp. n., ♀, paratype, posterior margin of subgenital plate; 918—A. granulata Mistshenko sp. n., ♂, type, subgenital from side; 919—A. kozlovi Mistshenko sp. n., ♂, type, subgenital plate from side; 920—A. granulata Mistshenko sp. n., ♀, allotype, tympanal organ; 921—A. incallida Mistshenko sp. n., ♀, allotype, tympanal organ, 922—A. koreana antennata Mistshenko subsp. n., ♂, type, subgenital plate from side; 923—A. chinensis (Westw.), ♀, posterior margin of genital plate; 924—A. oxycephala (Pall.), , head from above; 925—A. oxycephala (Pall.), ♀, posterior margin of subgenital plate; 926—A. anatolica Dirsh, ♀, posterior of subgenital plate.

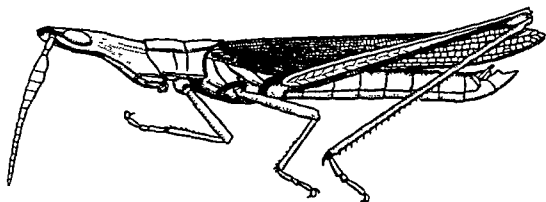


Figure 927

927—Acrida oxycephala (Pall.), ♂ (after Bei-Bienko).

Shiraki, 1910:2, 60 (*Tryxalis*) (partim), Obenberger, 1926-71 (*Tryxalis*) (partim).—*turrita* Jakobson, 1905:176, 214 (partim), Kirby, 1914:98 (partim), Tarbinskii, 1940:22, 165, 166 (partim), Tarbinskii, 1948 115 (partim).—*turrita turrita* Uvarov, 1927a:60 (partim).

18(13). Wings in both sexes darkened in the basal half. Antennae in both sexes with quadrate median segments; length of a separate segment 1.25-1.75 times more than its greatest width. Pronotum in both sexes in the posterior part with distinctly rounded diverging lateral carinae. Mesosternum in both sexes with a moderately wide space between the lobes; its narrowest part is two-thirds the length. ♀ subgenital plate on the posterior margin with 3 triangular rounded processes, the median process reaching the apices of the lateral processes. Body length ♂ 34.5-35.7, ♂ 46.0-48.3 mm; tegmina ♂ 26.6-27.8, ♀ 40.6-41.7 mm.—Southern Iran, Pakistan, Kashmir, India to Ceylon, southern China, Celebes (?).
. 10. *A. exaltata* (Walk.)

Walker, 1859, Ann. Mag. Nat. Hist., (3), IV 222 (*Tryxalis*), Kirby, 1914 98, 99, Figure 80.—*brevicollis* L. Bolivar, 1893, Feuille Jeunes Nat., (3), XXIII 162, 164 (*Tryxalis*).—*lugubris* Burr, 1902, Trans. Ent. Soc. Lond., 157, 170; Kirby, 1914. 98, 99, Figure 81.

112. Genus *Truxalis* Fabr.

Fabricius, 1775, Syst. Ent.:279.—*Tryxalis* Brunner-Wattenwyl, 1882:83, 87 (partim).—*Tryxalis* subgen. *Acridella* L. Bolivar, 1893, Feuille Jeunes Nat., (3), XXIII 163.—*Acrida* subgen. *Acridella* Jakobson, 1905:176, 214.—*Acridella* Kirby, 1914 96, 100, Uvarov, 1927a:55, 60, Tarbinskii, 1940:22, 159, 166.

Type genus: *Truxalis nasuta* (L.).

Head large, conical; its length greater than the length of the pronotum. Eyes situated in the anterior part of the head, the distance from the anterior margin of the eye to the fastigium half the distance from the posterior margin of the eye to the anterior margin of the pronotum. Antennae sword-shaped. Precoxal field of tegmina in the apical half moderately wide, transparent, with regularly situated oblique cross veins. Apex of tegmina and wings acute-angular. Empodium between the tarsal claws small, narrow, not reaching the middle of the claws. Dorsal genicular lobes with a spine on the outer and inner aspects of the hind femur.

About 25 species are known, living in dry grassy regions of southern Europe, Africa, and southwestern Asia.

1(2). Pronotum strongly narrowed in the anterior part, in the posterior distinctly swollen, in profile usually saddle-shaped; transverse groove extending nearly along the middle; lateral carinae in the anterior part nearly parallel, strongly roundly convex in the posterior part. Body length ♂ 35.0-37.2, ♀ 50-65 mm; tegmina ♂ 28.7-32.4, ♀ 49.6-65.2 mm.—Transcaucasia, Middle Asia; southern Europe, North Africa, southwestern Asia. Injures alfalfa, cotton, truck crops, and melons [or cucurbits] in Azerbaijan and southern Tadzhikistan. #1. *T. nasuta* (L.)

Jakobson, 1905 176, 214 (*Acrida* subgen. *Acridella*), Kirby, 1914:100 (*Acridella*), Uvarov, 1927a:60, Figure 21 (*Acridella*); Tarbinskii, 1940:23, 166 (*Acridella*).—*nasutus* Linnaeus, 1758,

Syst. Nat., Ed. X, 1 427 (*Gryllus Acrida*). — *erythropterus* Latreille, 1804, Hist. Nat. Crust., Ins., XII 148. — *annulatus* Tunberg, 1815, Mem. Acad. Imp. Sci. St. -Petersb., V-267. — *nebulosus* Tunberg, 1815, ibid.:267. — *bilineatus* Tunberg, 1815, ibid. 268. — *undatus* Tunberg, 1827, Nova Acta Reg. Soc. Sci. Upsal., IX:78, 82. — *eximius* Elchwald, 1830, Zool. Spec., II 239. — *scalaris* Klug, 1830, Symb. Phys., tab. XV, Figures 2-4. — *procerus* Klug, 1830, ibid., tab. XVI, Figures 2-3. — *conspicua* Klug, 1840, ibid., tab. XVII, Figure 1. — *variabilis* Klug, 1830, ibid., tab. XVII, Figures 3-6. — *minuta* Klug, 1830, ibid., tab. XVIII, Figures 3-4 (not 1-2). — *unguiculata* Rambur, 1839, Faune entomologique de l'Andalousie, II 72. — *isabellina* Fischer-Waldheim, 1846 232. — *klugii* Fieber, 1853, Lotos, III 97 (*Tryxalis*).

Biology Mshchenko, 1949b 154, Mshchenko, 1950, Doklady AN SSSR (novaya seriya), LXXI, 4 789.

- 2 (1). Pronotum in the anterior part not narrowed, in the posterior part, flat, in profile nearly straight, transverse groove extending distinctly behind the middle; lateral carinas distinctly divergent toward the posterior margin, in the posterior part, weakly convex. Body length ♂ 49.6-53.2, ♀ 69.7-78.3 mm; tegmina ♂ 39.7-45.2, ♀ 59.6-65.3 mm. — Transcaucasia, Asia Minor, Syria, Iraq, Iran... *2. *T. robusta* (Uv.)

Uvarov, 1916, Russkoe entomologicheskoe obozrenie, XVI 8, 11, Figure IV (*Acrida*), Tarbinskii, 1940 23, 166, 167 (*Acridella*).

113. Genus *Gelastorhinus* Br.-W.

Brunner-Wattenwyl, 1893, Ann. Mus. Civ. Stor. Nat. Genova, (2), XIII (XXXIII):137, 157, Shiraki, 1910-51, 61 (partim), Uvarov, 1927a 55, 61 (partim). — *Gelastorhinus* Burr, 1902, Trans. Ent. Soc. Lond., 154, 180 (partim), Kirby, 1914 192, 216 (partim).

Type of genus *Gelastorhinus albolineatus* Br.-W., Burma.

Head small, its length equal to, less than or slightly greater than the length of the pronotum. Eyes situated almost in the central part of the head, distance from the anterior margin of the eye to the fastigium equal to or slightly less than the distance from the posterior margin of the eye to the anterior margin of the pronotum. Antennae sword-shaped. Apex of tegmina and wings pointed. Dorsal genicular lobe with a spine on the outer and inner aspect of the hind femur.

About 10 species are known, distributed in eastern Africa, on Madagascar, and in southwestern Asia, with the islands adjacent to it.

- 1 (4). Head of ♂ large, equal to or slightly larger than the length of the pronotum.
- 2 (3). Head of ♂ equal to the length of the pronotum. ♂ pronotum with nearly straight posterior margin. Head of ♂ with 3 weak carinae and 4 indistinct red-brown bands. ♂ pronotum with 2 weak transverse grooves. ♀ unknown. Length of body of ♂ 40.6 mm, spread of tegmina 124.5 mm. — China Kiangsu (According to Walker) 1. *G. sinensis* (Walk.)

Walker, 1871, Cat. Derm. Salt. Brit. Mus., V, Suppl. 49 (*Tryxalis*).

- 3 (2). ♂ head slightly larger than the length of the pronotum. ♂ pronotum with strongly rounded posterior margin. ♂ vertex elongate-conical with raised margins, slightly shorter than the part of the head

situated behind the eyes. σ frons with 4 carinae. σ Eye not projecting on the side. σ antennae long; third, fourth, and fifth segments slightly widened. φ unknown. Length of σ body 30.5; spread of tegmina 61 mm.—Northern India (According to Walker). 2. G. filatus (Walk.)

Walker, 1871, Cat. Derm. Salt. Brit. Mus., III.502 (Mesops).

- 4 (1). Head shorter in both sexes; its length distinctly less than that of the pronotum. φ antennae shorter than the head and the pronotum, in the σ longer than they are. Eyes in both sexes large, elliptical. Pronotum in both sexes rather wide; median carina intersected by only one transverse groove, the other transverse groove weak; posterior margin rounded. Tegmina in both sexes with a rounded apex. Length of body of σ 32-33, φ 51 mm; tegmina of σ 24-25, φ 39 mm.—China: Kiangsu, Taiwan (According to Shiraki). 3. G. rotundatus Shir.

Shiraki, 1910 61, 62, tab. II, Figures 6a-c.

114. Genus Gonista I. Bol.

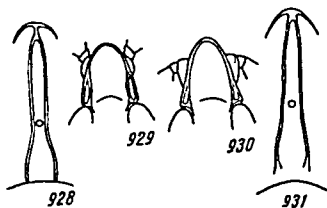
I. Bolivar, 1898, Ann. Mus. Civ. Stor. Nat. Genova, (2), XIX (XXXIX):29, Tarbinaki, 1940 23, 160, 167.—Gelastorhinus Shiraki, 1910 51, 61 (partim), Uysarov, 1927a.55, 61 (partim).—Gelastorhinus Kirby, 1914:192, 216 (partim).

Type of genus: Gonista bicolor (Haan).

Head small; much shorter than the pronotum. Eyes situated almost in the central part of the head. Vertex strongly projecting forward and strongly depressed, distance from the anterior margin of the eye to the fastigium equal to or still more than the greatest width of the vertex and nearly equal to the greatest diameter of the eye. Antennae sword-shaped. Apex of tegmina and wings usually sharpened, rarely rounded. Dorsal genicular lobes of hind femur rounded.

Around 5 species are known, distributed in Transcaucasia, in Central and southeastern Asia and on the islands of the Malayan Archipelago.

- 1 (6). Tegmina in both sexes long, distinctly extending beyond the middle of the hind tibiae, if the latter are out stretched straight caudad. Wings in both sexes considerably shorter than the tegmina, with a sharply produced pointed apical lobe; in the σ very narrow, length of wing 3-3.5 times more than its greatest width.
- 2 (5). Foveolae in both sexes strongly impressed, distinct, smooth. Median ocellus in both sexes situated at the beginning of the ventral third of the frontal ridge (Figure 928). σ mesosternum with lobes contiguous in the middle.
- 3 (4). Vertex in both sexes not narrowed toward the fastigium, with nearly parallel inner carinae (Figure 929). σ tegmina narrow; length of tegmina 12-13 times more than the greatest width. Wings in both



Figures 928-931
Original

928—Gonista sagitta (Uv.), ♂, frontal ridge from front; 929—G. bicolor (Haan), ♂, vertex from above, 930—G. sagitta (Uv.), ♂, vertex from above, 931—G. rotundata Uv., ♂, frontal ridge, from front.

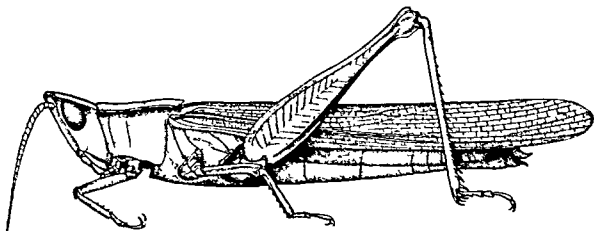


Figure 932
Original

932—Ochrilidia mistshenkoi (B.-Bienko), ♀.

sexes narrow, the length of a wing 3.25 times more than its greatest width. ♀ mesosternum with contiguous lobes, in the middle. Length of body of ♂ 24.8-30.0, ♀ 38.5-43.5 mm; tegmina ♂ 24.5-29.5, ♀ 37.0-41.2 mm. -Korea, eastern China, Japan, islands of the Malayan Archipelago. 1. G. bicolor (Haan)

Haan, 1842, Verh. Nat. Gesch. Nederl. Overt. Beft.:147, 148 Acridium (Opsomala). -
antennata L. Bolivar, 1898, Ann. Mus. Civ. Stor. Nat. Genova, (2), XIX (XXXIX):93. -gracilis
 Fritze, 1899, Rev. Suisse Zool., VII:338, tab. XVI, Figures 1 a, b, c (Gelastorhinus). -lucius
 Burr, 1902, Trans. Ent. Soc. Lond.:181, 182 (Gelastorhinus). -esox Burr, 1902, ibid.:181, 183
 (Gelastorhinus); Shiraki, 1910:61 (Gelastorhinus).

- 4(3). Vertex in both sexes distinctly narrowed toward the fastigium; its inner carinae converging toward the fastigium (Figure 930). ♂ tegmina wider; length of tegmina 10-11 times more than their greatest width. Wings in both sexes wider; length of the wing 2.5-2.75 times more than its greatest width. ♀ mesosternum in the median part with distinctly separated lobes. Length of body of ♂ 30.0-33.1, ♀ 42.3-46.5 mm; tegmina ♂ 27.0-32.5, ♀ 39.4-43.6 mm. -Azerbaijan, Middle Asia, northern Iran and northern Afghanistan. Sometimes slightly injures grasses and cotton in Middle Asia
 . . . 2. G. sagitta (Uv.) - Arrow grasshopper [*Strela kobyłka*]

Uvarov, 1912, Trudy Ruskogo entomologicheskogo obshchestva, XI, 3-10, plate 1, Figure 1-2 (Gelastorhinus). Uvarov, 1927a:61, Figure 42a (Gelastorhinus); Tarbinskii, 1940:23, 167, Figure 4, 138.

Biology: Bel-Bienko, 1932b:14, Mishchenko, 1949b:154.

- 5(2). Foveolae in both sexes not depressed, punctate. The median ocellus in both sexes is situated right below the middle of the frontal ridge (Figure 931). ♂ mesosternum in the middle part with distinctly separated lobes. Length of body ♂ 31.4-42.0, ♀ 58.5-61.6 mm; tegmina ♂ 26.5-35.0, ♀ 45.1-47.0 mm. -Eastern and southern Iran; Ker-
 man, Laristan. 3. G. rotundata Uv.

Uvarov, 1933, Trudy Zoologicheskogo Instituta AN SSSR, (1932), 1:189.

- 6(1). ♂ tegmina short, extending slightly beyond the distal end of the hind femurs if the latter are stretched out straight caudad. ♂ wings still shorter than the tegmina, apical lobe not produced, rounded, length of ♂ wing more than 2.7 times its greatest width. ♀ unknown. Length of body ♂ 25.5, tegmina 21.5 mm. China: Kiangsu. (According to Willemse). 4. G. chinensis Will.

Willemse, 1932, Natuurhist. Maandblad, XXI, 8:107, Figure 4.

115. Genus Aswatthamanus Kirby.

Kirby, 1914 96, 101 Uvarov, 1933, Trudy Zoologicheskogo Instituta AN SSSR, (1932) 1 191 Uvarov, 1943c:70, 72. — Lefroyia Kirby, 1914 192. — Lefroya Kirby, 1914 219.

Type of genus Aswatthamanus cylindricus Kirby, South India

Head very large, its length 1.75 times the greatest length of the pronotum Vertex very distinctly projecting forward, the distance taken from the anterior margin of the eyes to the fastigium 2-2.25 times more than the greatest diameter of the eye. Eyes situated in the posterior part of the head, the distance taken from the anterior margin of the eyes to the fastigium 1.5 times more than the distance from the posterior margin of the eyes to the anterior margin of the pronotum Tegmina and wings with sharpened apex Dorsal genicular lobes of hind femora rounded

Two species are known being distributed in southeastern Iran and southern India.

- 1 (1) Eyes in both sexes narrow, hardly projecting at the sides, the greatest diameter of the eye nearly twice the smallest diameter. Tegmina in both sexes long and narrow extending far beyond the apex of the hind tibiae (if the latter are stretched out straight caudad). Mesosternum in both sexes with the lobes distinctly separated Metasternum in both sexes with the lobes contiguous in the posterior part Subgenital plate in the ♂ conical, its length nearly twice more than that of the cerci Length of body ♂ 29.5-33.0, ♀ 45.0-46.2 mm, tegmina ♂ 27.2-29.0 ♀ 36.7-38.0 mm —Southeastern Iran Kerman, Iranian Baluchistan . 1 A. iranicus Uv

Uvarov, 1933, Trudy Zoologicheskogo Instituta AN SSSR, (1932) 1 187.

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116. Genus Kirmania Uv.

Uvarov, 1933, Trudy Zoologicheskogo Instituta AN SSSR, (1932), 1 190, 192 Uvarov, 1943c:70, 72.

Head large, its length 1.25 times more than that of the pronotum Vertex strongly projecting forward the distance taken from the anterior margin of the eye to the fastigium hardly greater than the greatest diameter of the eye Eyes situated on the middle of the head the distance from the anterior margin of the eye to the fastigium is equal to the distance from the posterior margin of the eye to the anterior margin of the pronotum Tegmina and wings with pointed apices. Dorsal genicular lobes of hind femora rounded

Only one species from southeastern Iran is known

- 1 (1) ♂ eyes weakly projecting at the sides, irregularly elliptical ♂ antennae sword-shaped, very long, extending far beyond the posterior margin of the pronotum distinctly widened in the basal third ♂ tegmina long and narrow extending beyond the apices of the hind tibiae, if the latter are stretched out straight caudad ♂ mesosternum with a narrow medianly compressed interspace between the lobes. Subgenital plate of the ♂ conical ♀ unknown Length of body ♂ 35 tegmina 32 mm —Southeastern Iran, Kerman 1 K. exilis Uv

Uvarov, 1933, Trudy Zoologicheskogo Instituta AN SSSR, (1932), 1 190.

117. Genus Ochrilidia Stal.

Stål, 1873, *Recons. Orth.*, 192, 104; Brunner-Wattenwyl, 1882 83, 91 (partim), Kirby, 1914-96, 115 (partim).—Platypterna Fleber, 1853, *Locos*, III 98, Jakobson, 1905.165, 176, 215 (partim), Uvarov, 1927a 55, 62, Salfi, 1931.259, Tarbinskii, 1940-23, 160, Tarbinskii, 1948 112, 115.

Type of genus Ochrilidia tibialis (Fieb.), Crete.

Head short. Eyes situated in the central part of the head. Vertex short, weakly projecting forward. Foveolae distinct, situated below the margins of the apical part of the vertex. Pronotum with distinct lateral carinae. Apices of tegmina and wings rounded; median field of tegmina with a false median vein. Dorsal genicular lobes of hind femora rounded. Prosternum smooth. Lobes of metasternum contiguous in the posterior part.

About 30 species are known, living in southern Europe, in North Africa, in Hither and Middle Asia.

- 1 (4). Hind femur in both sexes with a black preapical spot on the inner aspect.
- 2 (3). ♀ vertex elongated, its greatest width equal to the distance between the anterior margin of the eye and the fastigium. ♀ antennae strongly widened in the basal part; sixth segment of antenna short and wide; its greatest width 3 times more than its length. Supraanal plate in the ♂ with a wide longitudinal depression occupying half of its greatest width. Length of body ♂ 19.7-21.7, ♀ 30.4-36.4 mm; tegmina ♂ 18-20, ♀ 27.5-31.6 mm.—Southern Turkmenia and Tadzhikistan; northern Afghanistan (Figure 932) . . . #1. O. mistshenkoi (B.-Bienko)

Bel-Menko, 1936, *Ann. Mag. Nat. Hist.*, (10), XVIII.294, Figure 2 (Platypterna).

- 409 3 (2). ♀ vertex short; its greatest width distinctly greater than the distance between the anterior margin of the eye and the fastigium. ♀ antennae less expanded in the basal part; sixth segment of antenna more elongated; its greatest width 1.5 times more than its length. Supraanal plate in the ♂ with a narrow longitudinal depression occupying only 1/3 of its greatest width. Length of body ♂ 18.3-20.6, ♀ 27.7-34.5 mm; tegmina ♂ 17.5-18.2, ♀ 20.6-28.7 mm.—Southeastern and southern Iran; Kerman, Laristan, Iranian Baluchistan, Mekran; Pakistan (Laharpur) 2. O. variopicta (Salfi)

Salfi, 1931 268, 311, Figures 151-161 (Platypterna).

- 4 (1). Hind femur in both sexes without a black preapical spot on the inner aspect.
- 5 (10). Mesosternum in both sexes with a wide interspace between the lobes; its narrowest part 2/5-2/3 its length (Figure 933).
- 6 (7). Pronotum in both sexes with nearly parallel lateral carinae in the anterior part, in the posterior part with the lateral carinae distinctly roundly divergent. Antennae in both sexes stout, length of a single median segment 1.25-1.5 times more than its greatest width. Mesosternum in both sexes with widely separated lobes; the narrowest part of the interspace between the lobes 1.75 times less than its length. Length of body ♂ 15.3, ♀ 26.5-27.5 mm, tegmina ♂ 14.4,

* [In the synonymy of the genus Ochrilidia it must be kept in mind that the name Platypterna was used by Hitchcock (1848).]

♀ 23.0-23.5 mm. —Northern Iran 3. O. persica (Salfi)

Salfi, 1931 268, 320, Figures 176-178 (Platypterna).

- 7 (6). Pronotum in both sexes with the lateral carinae gradually diverging toward the posterior margin.
8 (9). Hind femur in the ♀ short and stout, length of the femur 4.3-4.5 times more than its greatest width. Meso- and metasternum in the ♀ densely and coarsely punctate. ♂ unknown. Length of body ♀ 28.5 to 34.5, tegmina 26.5-31.0 mm. —Southern Turkmenia and Tadzhikistan *4. O. turanica (B.-Bienko)

Bel-Bienko, 1936, Ann. Mag. Nat. Hist., (10), XVIII 292, Figure 1 (Platypterna).

- 410 9 (8). Hind femur in both sexes long and narrow, length of femur 5.4-5.8 times more than its greatest width. Meso- and metasternum in the ♀ sparsely punctate *5. O. hebetata (Uv.) —
a (b). Antennae in both sexes weakly flattened in the basal part; the length of a single segment in the apical half of the antenna in the ♂ is twice as wide as its greatest width. Larger. Length of body ♂ 19-20, ♀ 29.0-32.4 mm, tegmina ♂ 16.0-17.5, ♀ 25.0-28.2 mm. Turkmenia and Uzbekistan *5a. O. hebetata hebetata (Uv.)

Uvarov, 1927a 63, Figure 24 (Platypterna); Salfi, 1931 341 (Platypterna). —tibialis Jakobson, 1905 176, 216 (Platypterna) (partly) Uvarov, 1925c 40, Figure 16 (Platypterna). —hebetata Uvarov, 1926, Eos, V 322 (Platypterna). Salfi, 1931 269, 338, Figures 255-262 (Platypterna).

- b (a) Antennae in both sexes strongly flattened in the basal part, the length of a single segment in the apical half of the antennae in the ♂ is 1.5 times more than its greatest width. Smaller. Length of body ♂ 16-18, ♀ 24 5-28.0 mm, tegmina ♂ 14-16, ♀ 20.5-24.0 mm. Dagestan, Lower Volga Region, western and southern Kazakhstan to the Ili river and the Lake of Alakul *5. O. hebetata (Uv.) —Sand pointy-headed locust [Ostrogolovka peschanaya].

Tarbinskii in Uvarov, 1926, Eos, II 326 (Platypterna); Uvarov, 1927a 63, Figure 25 (Platypterna). —Tarbinskii, 1926 52, Figure 15-16 (Platypterna) Salfi, 1931 341 (Platypterna) Tarbinskii, 1948 115 (Platypterna) Bel-Bienko, 1949c 723-725

- 10 (5) Mesosternum in both sexes with a narrow interspace, its narrowest part 4-5 times less than its length (Figure 934).
11 (14). Antennae in the ♂ with a slender apical part, the middle segments of this part distinctly elongated, length of a single segment 2-2.5 times more than its greatest width. Pronotum in the ♀ with the lateral carinae gradually divergent toward the posterior margin ♀ tegmina with a wide cubital field, its greatest width 1.5 times more than the greatest width of the median field.
12 (13). Vertex in both sexes wide, its greatest width slightly more than its lateral margin taken from the anterior margin of the eye to the fastigium (Figure 935). ♂ pronotum with distinctly diverging lateral

carinae in the posterior part. Length of body ♂ 19.8-24.5, ♀ 31-36 mm; tegmina ♂ 16.7-19.5, ♀ 23.2-27.5 mm.—Transcaucasia; western Iran *6. O. obtusa (Salfi)

Salfi, 1931-268, 324, Figures 182-186 (Platypterna), Tarbinskii, 1940-23 (Platypterna).

- 13(12). Vertex in both sexes narrower; its greatest width equal to its lateral margin, taken from the anterior margin of the eye to the fastigium (Figure 936). ♂ pronotum with lateral carinae parallel to each other in the posterior part. Length of body of ♂ 19.0-22.6, ♀ 27.5-30.0 mm; tegmina ♂ 15.5-18.0, ♀ 21-24 mm. —Iran, Punjab 7. O. affinis (Salfi)

Salfi, 1931-269, 326, Figures 187-192 (Platypterna).

- 14(11). ♂ antennae with a stout apical part; the median segments of this part hardly elongated; the length of a single segment is insignificantly greater than its greatest width. ♀ tegmina with a narrow cubital field; its greatest width equal to the greatest width of the median field, sometimes slightly greater, then the lateral carinae of the pronotum near the posterior transverse groove are distinctly concave being more widened out anteriorly to it than behind it, parallel to each other in the posterior part. Length of body ♂ 21-23, ♀ 34.0-36.5 mm; tegmina ♂ 17.6-18.0, ♀ 26-28 mm.—Transcaucasia; Iran, Iraq *8. O. uvarovi (Salfi)

Salfi, 1931 269, 342, Figures 263-272 (Platypterna), Tarbinskii, 1940 23 (Platypterna).

118. Genus Parapleurodes Rme.

Ramme, 1941, Mitt. Zool. Mus. Berlin, XXV:31.

Vertex short and wide, moderately projecting forward; its greatest width before the eye twice more than its length taken from fastigium to the line with the anterior margin of the eye; the distance from the anterior margin of the eye to the fastigium is significantly less than the greatest diameter of the eye. No foveolae. Antennae filiform. Pronotum with lateral carinae, developed for all its length, and with a posterior transverse groove running along far behind the middle. Tegmina with a median false vein [or false median vein] in the median field. Wings well developed. Dorsal genicular lobes of hind femora rounded. Prothorax smooth between the coxae of the front legs.

Only one species, from China, is known (According to Ramme).

- 1 (1). Frontal ridge in both sexes smooth or only weakly depressed between the antennae; its margins weakly divergent toward the clypeus. ♂ antennae slightly longer than the head and pronotum together. Pronotum in both sexes with a posterior transverse groove running along behind the middle. Length of body ♂ 21.4, ♀ 33.8 mm; tegmina ♂ 17, ♀ 25.2 mm.—China (According to Ramme) 1. P. chinensis Rme.

Ramme, 1941, Mitt. Zool. Mus. Berlin, XXV:32, Figure 10, tab. 1, Figures 9.

119. Genus Paracinema Fisch.

Fischer, 1853, Orth. Eur., 296, 312, Brunner-Wattenwyl, 1882:83, 96; Jakobson, 1905:165, 177, 217, Chopard, 1922:142, Key, 1936, Trans. R. Ent. Soc. Lond., LXXXV, 16:379, Tarbinskii, 1940:23, 160.

Type of genus: Paracinema tricolor (Thunb.), Moldavia, Transcaucasia, western Asia, southern part of western Europe, Africa, Madagascar.

Head short. Eyes situated almost in the central part of the head. Vertex rather long and narrow, its greatest width before the eyes equal to or distinctly less than its length taken from the fastigium to the line of the anterior margin of the eyes. No foveolae. Antennae slightly flattened in the basal part, filiform in the apical part. Pronotum with lateral carinae, developed only in the anterior part, hardly reaching the anterior transverse groove, the posterior transverse groove either in the middle or before it. Tarsi with a broad empodium between the claws, extending beyond the middle of the claws. Hind femora with rounded dorsal genicular lobes. Tegmina with a rounded apex, the median field with a false median vein. Wings with a rounded apex. Prosternum smooth. Metasternum with a distinct interspace between the lobes.

Two species are known, inhabiting Moldavia, Transcaucasia, the southern part of western Europe, in western Asia, Africa, and on Madagascar.

- 412 1 (1). Vertex in both sexes sloping, its fastigial part wide and flat, its greatest width before the eyes in the σ equal to, and in the φ greater than its lateral margin. Pronotum in both sexes with 2 lateral dark longitudinal bands dorsally, not reaching the posterior margin, posterior margin obtuse-angular, with a weak incision in the middle. Tegmina in both sexes extending far beyond the distal end of the hind femora. Hind tibiae in both sexes reddish or orange-red. Length of body σ 23.0-27.8, φ 30.0-42.3 mm, tegmina σ 21-25, φ 28-37 mm. — Moldavia, Transcaucasia, southern part of western Europe, north-western Africa, Asia Minor, Syria *1. P. tricolor bisignata (Charp.)

Key, 1936, Trans. R. Ent. Soc. Lond., LXXXV, 16:381, 388, fig. 1A — bisignatus Charpentier 1825, Horae entomologicae 133 (Cryllus) — viridulum Costa, 1836, Fauna del Regno di Napoli Ortolotti 33, tab. V (Acridium) — virescens Lucas, 1849, Expl. Sci. Alg. Zool., III Hist. Nat. Anim. Art., III 37, tab. IV, fig. 4 (Oedipoda) — tricolor Brunner-Wattenwyl, 1882:97, Figure 26 Jakobson, 1905:177, 217 (partly) Chopard 1922:121, 142, Figure 333 (partly) Tarbinskii 1940:23 (partly)

120. Genus Phlaeoba Stål.

Stål, 1860, Kongl. Sven. Fregatten Eugenies Resa, Zool., V, Orth. 340 Shiraki 1910:5, 10 Kirby 1914:96, 102 — Xiphocera Jakobson 1905:172, 292 (partly) — Amycus Shiraki, 1910:5, 9 (partim) — Kitbyella f. Bolívar, 1914, Trab. Mus. Nac. Clen. Nat., (Ser. Zool.) 20:76, 89

Type of genus: Phlaeoba rustica (Stål), Sumatra

Head short. Eyes situated in the middle part of the head. Vertex short, slightly projecting forward. No foveolae. Antennae flattened in the basal part. Pronotum with distinct entire lateral carinae. Tarsi with a large empodium between the claws extending beyond the middle of the claws.

Hind femora with rounded dorsal genicular lobes. Tegmina with bluntly truncate or rounded apex; median field with a false median vein. Wing with a rounded apex. Prosternum smooth. Metasternum in both sexes with separated lobes in the anterior part, in the posterior part in the ♂ they are contiguous with each other but in the ♀ distinctly separated.

About 20 species are known; they are poorly studied. These species inhabit southern and southeastern Asia, the islands of the Malay Archipelago, and the Philippines.

- 1 (2). Hind tibiae in the ♂ reddish. ♂ head finely rugose. ♂ vertex elongate, conical. ♂ wings whitish with a dark edge along the outer margin. ♀ unknown. Length of body ♂ 34.0-40.6, tegmina 45.7-50.8 mm. (According to Walker). — Korea, eastern China.
 1. Ph. fumida (Walk)

Walker, 1870, Cat. Derm. Salt. Ent. Mus., III 528 (Xiphocera). — fumosa Walker, 1870, *Ibidem*, III 528 (Xiphocera) (not Serville), Jakobson*, 1905:199, 293 (Xiphocera) (not Serville).

- 2 (1). Hind tibiae in both sexes light.
 3 (6). Vertex in both sexes with short lateral carinae, not extending to the occiput.
 4 (5). Vertex in the ♂ strongly projecting forward; its length taken from the fastigium to the line of the anterior margin of the eyes is distinctly greater than its greatest width before the eyes. ♀ antennae short and stout; gradually widening out from apex to base with a moderately stout short apical part. Tegmina in both sexes extending slightly beyond the distal end of the hind femora. Length of body of ♂ 22.5-25, ♀ 28-34.5 mm; tegmina ♂ 17-20.5, ♀ 21.7-25.6 mm. — China: Kiangsu, Fukien, Szechwan, Taiwan (According to I. Bolivar and Ramme) 2. Ph. sinensis I. Bol.

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I. Bolivar, 1914, Trab. Mus. Nac. Cien. Nat., (Ser. Zool.), 20.93, Ramme, 1941, Mitt. Zool. Mus. Berlin, XXV:14, tab. II, Figures 3a-c.

- 5 (4). ♂ vertex more slightly projecting forward; its length taken from the fastigium to the line of the anterior margin of the eyes is equal to its greatest width before the eyes. ♀ antennae long and slender, sharply tapering in the apical half with a long slender apical part. ♀ vertex with broadly rounded fastigium. Tegmina in both sexes extending far beyond the distal end of the hind femora. Length of body ♂ 19.2-25.0, ♀ 27.5-29.0 mm; tegmina ♂ 16-20, ♀ 21.5-27.0 mm. — India, Burma, Malacca Peninsula, China: Hupei, Kwangtung, Hainan. (According to Brunner-Wattenwyl and Ramme). 3. Ph. infumata Br.-W.

Brunner-Wattenwyl, 1893, Ann. Mus. Civ. Stor. Nat. Genova, (Ser. 2), XIII (XXXIII) 124, Kirby, 1914 102, 103, Figure 86, Ramme, 1941, Mitt. Zool. Mus. Berlin, XXV:13, tab. II, Figures 2a-d.

- 6 (3). Vertex in both sexes with long lateral carinae, extending onto the occiput and almost reaching the anterior margin of the pronotum. ♂ vertex short-conical, in both sexes with a rounded fastigium. ♂ antennae short and stout, the middle segments of the antenna nearly quadrate; in the ♀ lanceolate, nearly twice as long as the head.

* [The Latin form of this name is Jakobson.]

Length of body ♂ 21.2-21.6, ♀ 35.6 mm, tegmina ♂ 17.2-17.8, ♀ tegminal wingspan 61 mm. —Kashmir(?), southeastern China. (♀ according to Walker). 4. Ph. tenebrosa (Walk)

Walker, 1871, Cat Derm Salt Brit Mus., V, Suppl :53 (Opomala)

121. Genus Duroniella I. Bol

I Bolívar, 1908, Mém Soc Ent Belg., XVI 100 Uvarov, 1927a 56, 64, Tarbinskii, 1940 23 160 168 Tarbinskii, 1948 112, 115 —Duronia Jakobson, 1905:165, 176, 215 (partim)

Type of genus Duroniella lucasli (I. Bol.), North Africa

Head short. Eyes situated in the middle part of the head. Vertex short, slightly projecting forward. No foveolae. Antennae in the basal half, flattened. Pronotum with distinct entire lateral carinae. Tarsi with a small narrow empodium between the claws which is far from reaching the middle of the claws. Hind femora with rounded dorsal genicular lobes. Tegmina with a rounded apex, median field with a false median vein. Wings with a rounded apex. Prosternum smooth, Metasternum in both sexes anteriorly with separated lobes, in the posterior part in the ♂ they are contiguous with each other, but in the ♀ they are distinctly separated.

About 14 extremely closely-related species are known, living in the southeastern part of the European part of the U.S.S.R., in the Caucasus, Kazakhstan, North Africa, and in Hither, Middle [Soviet Central] and Central Asia.

- 114 1 (2). Tegmina and wings strongly abbreviated, in the ♂ nearly reaching the middle of the hind femora, but in the ♀ hardly extending beyond that. Antennae short, not reaching the posterior margin of the pronotum, near the base strongly widened. Wings colorless. Length of body ♂ 15.6-16.3, ♀ 26.3-29.3 mm, tegmina ♂ 5.9-6.4, ♀ 11.5-13.3 mm —Tadzhikistan: Stalinabad [now Dyushambe], Hissar. Slightly injures truck gardens in Tadzhikistan
. *1. D. brachyptera Um.

Umnov, 1931, Wien. Ent. Zeitg., XLVII 132

Biology: Mishchenko, 1949a 154

- 2 (1). Tegmina and wings developed, usually extending beyond the distal end of the hind femora or only reaching it, sometimes in the ♂ barely reaching that end, but always extending far beyond the middle of the hind femora.
- 3 (16). Pronotum in both sexes wide, its greatest width between the lateral carinae is 1.5 times more than the narrowest part of the pronotum.
- 4 (15). Wings in both sexes colorless, sometimes in the ♂ near the apex they are darkened, then the vertex is narrow, its greatest width before the eyes is equal to its lateral margin taken from the anterior margin of the eyes to the fastigium.
- 5 (6). ♀ pronotum with a posterior transverse groove running along far behind the middle, the length of the posterior part of the pronotum is equal to the narrowest part of the anterior part of the

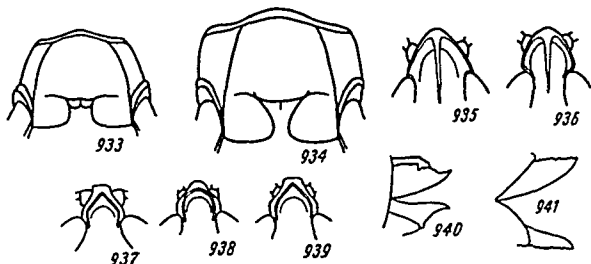
pronotum between the lateral carinae. σ tegmina not reaching the apices of the hind femora, sometimes reaching the apices and then the antennae are short and stout; sixth segment of antenna rectangular; its length half its greatest width. Length of body σ 14.7-16.2. φ 21.8-26.3 mm; tegmina σ 8.8 to 11.3. φ 14.6-16.2 mm. — Southeast of the European part of the U.S.S.R., Dagestan (?), Kazakhstan, Middle Asia,
 *2. D. kalmyka (Ad.)

Adelung, 1906, *Materialy k poznaniju fauny i flory Rossijskoi Imperii, Otdelenie zoologii* (Data on Fauna and Flora of the Russian Empire, Zoo. Dept.), VII 84 (Duronis). Uvarov, 1927a:65, Figure 26, 27, 39, Tarbinskii, 1940:23. — fracta Jakobson, 1905:176, 215 (Duronis) (partly). — kalmyska Tarbinskii, 1948:115.

- 6 (5). φ pronotum with a narrow anterior part; length of posterior part of pronotum distinctly greater than the narrowest part of the anterior part of the pronotum between the lateral carinae sometimes it is equal to it and then the posterior transverse furrow of the pronotum runs along almost in the middle. σ tegmina reaching or extending beyond the distal ends of the hind femora. σ antennae more slender; sixth segment of antenna quadrate or right-angled, its length equal to or 1.25-twice greater than its greatest width.
- 7 (8). Antennae in both sexes long and slenderer; length of a separate middle segment of the antenna 1.5 times greater than its greatest width. σ tegmina with a wide median field; its greatest width is 1.5 times greater than the same width of the cubital field. Vertex of the φ with a rounded fastigium. φ mesosternum with a narrow interspace between the lobes; its greatest width is distinctly less than the greatest width of the mesosternal lobe. Length of body σ 17-22, φ 24.7-28.2 mm; tegmina σ 15.3-17.2, φ 18.7-21.3 mm. — The Caucasus, southern Kazakhstan, Middle Asia; northern Iran, northern Afghanistan. Slightly injures truck gardens and young crops of alfalfa in Middle Asia. . . *3. D. gracilis Uv.

Uvarov, 1926, *Eos*, II 331, Uvarov, 1927a: 64, 65, Figure 28, 29, Tarbinskii, 1940:23, 168.
 Biology. Bel-Bienko, 1932b:14, Mishchenko, 1949b:154 (partly).

- 415 8 (7). Antennae in both sexes shorter and stouter; length of a single middle segment of the antenna equal to or hardly greater than its greatest width; sometimes in the σ 1.25 times greater than this width, then the tegmina has a narrow median field, the greatest width of which is equal to the greatest width of the cubital field.
- 9 (14). Pronotum in the φ with a narrow anterior part; the length of the posterior part of the pronotum is distinctly greater than the greatest width of the anterior part of the pronotum between the lateral carinae. σ wings colorless at the apex.
- 10 (11). Vertex in the φ with an acute-angled fastigium (Figure 937). Frontal ridge in the σ between the antennae flat, absolutely not depressed. Pronotum in the φ with the posterior transverse groove running along distinctly behind the middle. σ vertex distinctly depressed.



Figures 933-941

Original

933—Ochrilidia persica (Salfi), ♀, mesosternum; 934—O. obtusa (Salfi), ♀, mesosternum; 935—O. obtusa (Salfi), ♀, vertex from above; 936—O. affinis (Salfi), ♀, vertex from above; 937—Duroniella turcomana Mistshenko sp. n., ♀, allotype, vertex from above; 938—D. angustata Mistshenko sp. n., ♀, allotype, vertex from above; 939—D. carinata Mistshenko sp. n., ♀, allotype, vertex from above; 940—Podismopsis (S. str.) frontalis Mistshenko sp. n., ♀, paratype, ovipositor from side; 941—P. (Podismacris) insularis insularis Mistshenko sp. et subsp. n., ♀, allotype, ovipositor from side.

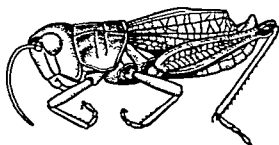


Figure 942

942—Podismopsis (s. str.) altaica
(Zub.), ♂ (After Bei-Bienko)*

* [For description, see p. 42.]

- Tegmina in both sexes with a wide median field; its greatest width slightly exceeding the greatest width of the cubital field. Length of body ♂ 16.8-18.3, ♀ 22.5-23.1 mm; tegmina ♂ 12.5-13.8, ♀ 17.2-18.7 mm. —Southwestern Turkmenia: Kara-kala, Mollakara, Kuchguran, Ashkhabad, (Type from Kara-kala) *4. *D. turcomana* Mistshenko sp. n.
- 11(10). Vertex of the ♀ with a rounded fastigium (Figure 938) sometimes with a pointed fastigium, then the posterior transverse groove of the pronotum runs along before its middle or along the middle. Frontal ridge of the ♂ between the antennae strongly depressed.
- 12(13). Vertex of the ♀ with a rounded fastigium (Figure 938). ♂ pronotum in the anterior part with nearly parallel lateral carinae; the width of the anterior margin of the ♂ pronotum between the lateral carinae is equal to the same width taken along its posterior transverse groove; posterior transverse groove of pronotum in the ♀ runs along distinctly caudad of the middle. Length of body ♂ 14.3-15.5, ♀ 18.7-21.5 mm; tegmina ♂ 11.5-12.7, ♀ 14.5-16.8 mm. — West China, Sinkiang: Astyna (to the south of Turfan).
- 416 5. *D. angustata* Mistshenko sp.
- 13(12). Vertex in the ♀ with an acute-angled fastigium (Figure 939). Pronotum in the ♂ anteriorly with lateral carinae distinctly divergent toward the posterior transverse groove; width of anterior margin of pronotum in the ♂ between the lateral carinae distinctly less than the same width taken along its posterior transverse groove; the posterior transverse groove of the pronotum in the ♀ runs along in front of the middle or along the middle. Length of body ♂ 15.6-17.1, ♀ 21.3-24.4 mm; tegmina ♂ 11.7-13.5, ♀ 17.4-18.7 mm. — Astrakhan Region: Astrakhan, Volga Delta; Stavropol Territory: Nur-Magomet downstream on the Kuma, the lower part of the Kuma; Grozny Region: Chernyi Rynok; northern Dagestan: Tushilovka. (Type from the environs of Nur-Magomet)
- *6. *D. carinata* Mistshenko sp. n.
- 14 (9). ♀ pronotum with a wider anterior part; length of the posterior part of the pronotum equal to the greatest width of the anterior part of the pronotum between the lateral carinae. ♂ wings darkened in the apical half. Antennae in both sexes short and stout; median segments nearly quadrate. Mesosternum in both sexes with a wide interspace between the lobes; its narrowest part equal to its length. Tegmina in both sexes with a wide median field; its greatest width distinctly greater than the greatest width of the cubital field. Length of body ♂ 15.5-19.3, ♀ 24.5-28.5, tegmina ♂ 13.4-13.6, ♀ 18.5-19.5 mm. —Tadzhikistan: Stalinabad.
- *7. *D. sogdiana* Mistsh.

Mistshenko, 1949a:746.

Biology: Mistshenko, 1949b:154 (partim as *D. gracilis* Uv.).

- 15 (4). Wings in both sexes darkened in the apical half, sometimes nearly black. Vertex in the ♂ wide; its greatest width before the eyes distinctly greater than its lateral margin, taken from the anterior margin of the eye to the fastigium. Pronotum in both sexes with

a posterior transverse groove running along right behind the middle. Mesosternum in both sexes with a rather wide interspace between the lobes, its narrowest part slightly less than its length. Length of body ♂ 19, ♀ 26.5-32.2 mm, tegmina ♂ 15.0-16.3, ♀ 19.8-22.1 mm. —North Africa, Hither Asia . . 8. D. fracta (Kr.)

Krauss, 1890, Verh. zool.-bot. Ges. Wien, XI 260 (Duronis), Yakobson, 1905:176, 215 (Duronis) (partly)

- 16 {3}. *Pronotum in both sexes with a wide posterior part, the greatest width of the pronotum between the lateral carinae twice greater than its narrowest part. Antennae in both sexes short, flattened, in the ♂ reaching, and in the ♀ far from reaching the posterior margin of the pronotum. Wings dark, sometimes nearly black, in the apical half. Length of body ♂ 15, ♀ 21-25 mm, tegmina ♂ 14, ♀ 17-21 mm. —Asia Minor, Palestine 9 D. laticornis (Kr.)*

Krauss, 1909, Verh. Naturwiss. Ver. Karlsruhe, XXI 118, 119, Figures 11-12 (Duronis)

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122. Genus Paragonista Will.

Willemse, 1932, Natuurhist. Maandblad, XXI, 8:104

Head moderately short. Eyes situated in the middle part of the head. Vertex short, moderately projecting forward. No foveolae, or they are very indistinct. Antennae flattened in the basal part. Pronotum with distinct entire lateral carinae. Tarsi with a small narrow empodium between the claws. Tegmina with a rounded apex, median field with a false median vein. Wing with a rounded apex. Prosternum smooth. Metasternum with contiguous lobes.

Only one species from eastern China is known (According to Willemse).

- 1 (1). Median ocellus in both sexes situated slightly lower than the middle of the frontal ridge. Pronotum in both sexes laterally compressed, in the anterior part with the lateral carinae parallel to each other, in the posterior part the lateral carinae being divergent. Supraanal plate in the ♂ triangular, with a blunt apex and oval median depression. ♂ cerci long, conical, extending beyond the apex of the supraanal plate. Subgenital plate in the ♀ with a rounded posterior margin. Ovipositor with short valves. Length of body ♂ 21, ♀ 28 mm, tegmina ♂ 17, ♀ 22 mm. —China: Kiangsu. (According to Willemse) 1. P. infumata Will.

Willemse, 1932, Natuurhist. Maandblad, XXI, 8:104, Figure 1

123. Genus Chrysochraon Fisch.

Fischer, 1853, Orth. Eur. 296, 307; Brunner-Wattenwyl, 1882 84, 97 (partim) Jakobson, 1905 165, 177, 218 (partim) Shiraki, 1910:5, 15 (partim) Chopard, 1922:143 (partim), Obenberger, 1926 62, 74 (partim) Uvarov, 1927a:56, 65 (partim) Bel-Bienko, 1932a 50, 52 Miram, 1933 19, 20 (partim), Berezhkov, 1937 1937:26, 33 (partim), Tarbinskii, 1940-43, 160 Tarbinskii, 1948:112, 115

Head short. Eyes situated in the middle part of the head. Vertex short. No foveolae. Antennae near the base distinctly widened, flattened. Pronotum with weakly diverging sharp lateral carinae; median carina intersected by only one (the posterior) transverse groove. Hind femora with acute-angled pointed distal end on the ventral genicular lobes; dorsal genicular lobes rounded. Tarsi with a large empodium between the claws. σ tegmina with a rounded apex; median field without false median vein. Prosternum smooth. Ovipositor with short stout valves; dorso-outer margin of the dorsal valves with a distinct rounded incision.

Only one species is known; it has been subdivided into 2 subspecies and is distributed in Europe, the northern Caucasus, in Siberia, Kazakhstan, and in northeastern Middle Asia.

- 1 (1). σ antennae nearly twice longer than the head and pronotum, in the η nearly reaching the posterior margin of the pronotum. Tegmina usually abbreviated, far from reaching the distal end of the hind femurs, in f. macroptera extending beyond it. Wings usually hardly indicated, well developed in f. macroptera *1. Ch. dispar (Germ.)—Unpaired green grasshopper [Zelenchuk neparnyi].
- a(b). η vertex with nearly horizontal fastigial part; fastigium right-angled. Episterna of meso- and metathorax in both sexes with nearly smooth posterior part. Smaller and more slender and graceful. Length of body σ 16.8-19.1, η 22-26 mm; tegmina σ 9-11, η 6.5-7.0, f. macroptera σ 15.0-19.5, η 19.0-20.5 mm. European part of the U.S.S.R. and Siberia (except the extreme north), Northern Caucasus, Kazakhstan, western Europe *1a. Ch. dispar dispar (Germ.)
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Bei-Bienko, 1932a:53, Figure 1.—dispar Germar, 1831-1835, Fauna Insectorum Europae, XVII, tab. VIII (Podisma), Brunner-Wattenwyl, 1782:98, Figure 27; Jakobson, 1905:177, 218; Chopard, 1922 122, 142, Figures 335, 337, 338, Obenberger, 1926:74, tab. II, Figures 76, 77, tab. III, Figures 132, 134; Uvarov, 1927a:66, 67, Figure 43, 43a, 44, Berezhkov, 1937:34, 52, Tarbinskii, 1940:23, 221, Figure 171; Tarbinskii, 1948:115.—platypterus Oskay, (1832) 1833, Nova Acta Phys.-Med. Acad. Leop. Car., XVI, 2:960 (Gryllus, f. macroptera).

Biology: Ramme, 1926, Zeit. Morphol. Ökol. Tiere, VII:127-133, Figures 1-8; Zimin, 1928-33, 42, Plate II, Figure 8; Dovnar-Zapol'skii, 1940 241, 244.

- b(a). η vertex with a sloping fastigium; fastigium rounded. Episterna of the meso- and metathorax in both sexes in the posterior part with coarse strongly impressed punctures. Larger and stockier. Length of body σ 21-24, η 32-38 mm; tegmina σ 13.5-14.5, η 11-14 mm.—Northern Dagestan, Georgia, eastern Kazakhstan, northeastern Uzbekistan, Kirghizia, Maritime Territory *1b. Ch. dispar major Uv.

Uvarov, 1925, Journ. Bomb. Nat. Hist. Soc., XXX:260, Uvarov, 1927a:67; Bei-Bienko, 1932a:53, 55, Tarbinskii, 1940:23.—dispar orientalis Dinsh, 1929, Trudi Fiziko-matematicheskogo viddilu Vsesoiuznogo Akademi Nauk, XIII, 1:223

124. Genus Euthystira Fieb.

Fieber, 1853, Lotos, III 118, Bei-Bienko, 1932a:51, 78, Tarbinskii, 1940:23, 160, 163, Tarbinskii, 1948:112, 113 (partim).—Chrysocraea Brunner-Wattenwyl, 1882:84, 97 (partim); Jakobson, 1905:165,

177, 218 (partim), Chopard, 1922:143 (partim); Obenberger, 1926-62, 74 (partim); Uvarov, 1927a: 56, 65 (partim), Miram, 1933: 19, 20 (partim); Berezhkov, 1937: 26, 33 (partim).—Eogaeacris Rehn, 1928, Proc. Acad. Nat. Sci. Phil., LXXX:198.

Head short. Eyes situated in the middle part of the head. Vertex short. No foveolae. Antennae near the base widened out, flattened. Pronotum with weakly divergent, moderately leveled off, lateral carinae, median carina intersected by only one (the posterior) transverse groove. Hind femora with acute-angled rounded distal end on the ventral genicular lobes; dorsal genicular lobes rounded. Tarsi with a large empodium between the claws; hind tarsi with the first segment long; its length is greater than the length of the third segment. ♂ tegmina with irregular venation; apex of tegmina obliquely truncate; median field without false median vein. Prothorax smooth. ♀ ovipositor with long narrow valves; dorso-outer margin of the dorsal valves without an incision.

Only 1 species is known, being subdivided into 2 subspecies, of which only one subspecies lives in the U.S.S.R. and is distributed in Europe, the Caucasus, Kazakhstan, Kirghizia, and Siberia.

- 419 1 (1). Antennae 1.25 - 1.5 times longer than the head with the pronotum. Pronotum posteriorly with parallel lateral carinae; posterior margin rounded or nearly straight-truncate. ♂ tegmina nearly reaching the middle of the hind femora and in the ♀ hardly extending beyond their bases; in f. macroptera extending beyond their distal ends. Wings hardly indicated, well developed in f. macroptera. Length of body ♂ 13.5-17.0, ♀ 18-26 mm; tegmina ♂ 5.5-7.0, ♀ 3-4 mm; f. macroptera ♀ 17.5 mm. — European part of the U.S.S.R. and Siberia except the extreme north, the Caucasus, Kazakhstan, except the south, Kirghizia, western Europe *1. Eu. brachyptera brachyptera (Ocsk.)—Short-winged green grasshopper [Zelenchuk korotkokrylyi].

Bei-Bienko, 1932a:79. —brachypterus Ocskay, 1826, Nova Acta Phys.-Med. Acad. Leop. Car., X XIII, 1-409 (Gryllus), Brunner-Wattenwyl, 1882:98, 99 (Chrysoschraon), Jakobson, 1905:177, 218 (Chrysoschraon), Chopard, 1922:122, 143, Figures 336, 339, 340 (Chrysoschraon), Obenberger, 1926: 74, tab. II, Figure 85, tab. III, Figures 131, 133, tab. IV, Figure 164, (Chrysoschraon), Uvarov, 1927a, 67, Figures 45-47 (Chrysoschraon), Miram, 1933:20 (Chrysoschraon), Berezhkov, 1937:34, 52 (Chrysoschraon).—ocsckayi Fieber, 1853, Lotos, III 118 (Chorthippus) —brachyptera Tarbinskii, 1930:23, 168, 221, Figure 141; Tarbinskii, 1948:115.

Biology. Bei-Bienko, 1928a:181, Figure 5, Rubtsov, 1932c:7, Nefedov, 1933, Izvestiya Permskogo biologicheskogo nauchno-issledovatel'skogo instituta, VIII, 4-5:151-188, Zimin, 1938:38, 42, Plate II, Figure 9, Dovnar-Zapolskii, 1940:221, 242, 244.

125. Genus Mongolotettix Rehn

Rehn, 1928, Proc. Acad. Nat. Sci. Phil., LXXX:200, Bei-Bienko, 1932a:51, 81. —Chrysoschraon Jakobson, 1905:165, 177, 218 (partim), Shiraki, 1910:5, 15 (partim); Berezhkov, 1937:26, 33 (partim). —Euthystira Tarbinskii, 1938:112, 115 (partim).

Type of genus: Mongolotettix japonicus (L. Bol.).

Head short. Eyes situated in the middle part of the head. Vertex short. No foveolae. Antennae sword-shaped. Pronotum with weakly divergent obliterated lateral carinae, more strongly developed in the anterior than in the posterior part; median carina intersected by only one (the posterior)

transverse groove. Hind femora with acute-angled weakly rounded distal end on the ventral genicular lobes; dorsal genicular lobes rounded. Tarsi with a large empodium between the claws; hind tarsi with a short first segment; its length nearly equal to that of the third segment. σ tegmina with regular venation; apex of tegmina obliquely truncate, notched; median field without a false median vein. Prosternum smooth. φ ovipositor with long narrow valves; dorso-outer margin of dorsal valves finely dentate, without pre-apical notch.

Two species are known living in the southern part of East Siberia, in Mongolia, in northern and eastern China, in Korea and Japan. In the U.S.S.R. there is only one species, subdivided into 2 subspecies.

- 1 (1). Vertex in both sexes convex, with a distinct median carina. Mesosternum in both sexes with a wide interspace between the lobes; its width at the anterior margin is nearly equal to its length; interspace narrowed in the middle. Subgenital plate in the σ cone-like, pointed; φ with a distinct triangular process on the posterior margin. *1. M. japonicus (I. Bol.)
- a(b). Antennae long, in the σ 1.5 times as long as the head and pronotum together, in the φ equal to them; length of a separate middle segment of the antenna 1.75-twice more than its greatest width. Larger. Length of body σ 18-22, φ 24-32 mm; tegmina σ 10.5-11.1, φ 4.7-5.0 mm. - Lower course of the Amur, Maritime Territory; Korea, Japan. *1a. M. japonicus japonicus (I. Bol.)

Bei-Bienko, 1932a:83, Figure 17. - japonicus I. Bolivar, 1898, Ann. Mus. Civ. Stor. Nat. Genova, XXXIX:82 (Chrysocraon). Jakobson, 1905:219 (Chrysocraon), Shiraki, 1910:2, 16 (Chrysocraon).

- b(a). Antennae shorter, in the σ 1.25 times as long as the head and pronotum together, in the φ not reaching the posterior margin of the pronotum; length of a separate median segment of the antenna 1.25-1.50 times more than its greatest width. Smaller. Length of body σ 17-20, φ 22-30 mm; tegmina σ 7.0-8.5, φ 3.8-4.5 mm. - Southeastern Siberia, Mongolia, northern China; Manchuria *1b. M. japonicus vittatus (Uv.) - Striped green grasshopper [Zelenchuk polosatyi].

Bei-Bienko, 1932a:83, 85, Figures 15-16. - vittatus Uvarov, 1914, Ezhegodnik Zoologicheskogo muzeya Akademii Nauk, XIX:168 (Chrysocraon). Berezhkov, 1937:34, 52 (Chrysocraon). - vittata Tarbinskii, 1943:115 (Euthystira).

126. Genus Podismopsis Zub.

Uvarov, 1925:38, 42; Bei-Bienko, 1932a:51, 58, Miram, 1933:19, 20, Berezhkov, 1937:26, 34, Tarbinskii, 1943:112, 115. - Monopterus Fischer-Waldheim, 1846:252 (partim). - Chrysocraon subgen. Podismopsis Zubovskii, 1899-1900, Trudy Ruskogo entomologicheskogo obshchestva, XXXIV:2, Jakobson, 1905:177, 219. - Chrysocraon Shiraki, 1910:5, 15 (partim). - Podismopsis subgen. Euthystira Bei-Bienko, 1932a:51, 58. - Podismopsis subgen. Podismacris Bei-Bienko, 1932:51, 70. - Podismopsis subgen. Podismopsis Bei-Bienko, 1932a:51, 74.

Type of genus: Podismopsis (L. str.) altaica (Zub.).

Head short. Eyes situated in the middle part of the head. Vertex short. No foveolae. Antennae filiform or hardly flattened, but not widened at the base. Pronotum with distinctly roundly concave lateral carinae, median carina intersected by only one (the posterior) transverse groove, posterior margin, straight, rounded, or hardly emarginate. σ tegmina with obliquely trimmed or notched apex, usually extending beyond the middle of the hind femora and being contiguous on the medio-dorsal line, sometimes being lateral, not medio-dorsally contiguous, and then reaching the fifth abdominal tergite, the median field without a false median vein in the φ they are wide, being 1.25-twice longer than their greatest width. Tarsi with moderately developed, empodium between the claws, not reaching, reaching, or extending beyond their middle. Hind femora with obtuse-angular rounded distal end on the ventral external genicular lobe, dorsal genicular lobes rounded. Prosternum smooth. φ ovipositor with long or short valves, the dorso-external margin of the dorsal valve is smooth, without a preapical notch, or with two notches.

10 species are known, distributed in the northern part of the European part of the U.S.S.R., in Bashkiri, almost over all of Siberia, in the Altai, Greater and Lesser Shantar Is., Sakhalin, and the Kuril Is., beyond the limits of the U.S.S.R. in Yugoslavia, Mongolia, northern China, Korea, and Japan.

Key to Subgenera of the Genus Podismopsis Zub.

- 1(2) σ vertex narrow, its width between the eyes twice the width of the frontal ridge between the antennae and the vertical diameter of the eye is equal to or greater than the subocular groove. σ tegmina with a wide costal field, its greatest width twice more than the greatest width of the subcostal field, sometimes 1.5 times and then the metasternum has a wide interspace between the lobes, the greatest width of which is 1.5-2 times greater than the length. φ ovipositor with short stout valves, dorso-outer margin of dorsal valves with 2 notches, ventro-outer margin of the ventral valves with a sharp tooth at the base (Figure 940) 1 Podismopsis Zub
- 2(1). σ vertex wider, its width between the eyes 3 times greater than the width of the frontal ridge between the antennae, sometimes 1.5 to twice wider and then the vertical diameter of the eye is 1.5 times less than the subocular groove. σ tegmina with a narrow costal field, its greatest width 1.5 times more than the greatest width of the subcostal field. σ metasternum with a narrower interspace between the lobes, its greatest width is always equal to its length. Ovipositor with long narrow valves, dorso-outer margin of the dorsal valves with small teeth, but without a notch, ventro-outer margin of ventral valves straight, with small teeth, without a sharp tooth at the base (Figure 941) 2 Podismacris B.-Bienko

1. Subgenus Podismopsis Zub.

Bel-Bienko, 1932a:51, 74. — Chrysochraon subgen. Podismopsis Zubovskii, 1899-1900, Trudy Russkogo entomologicheskogo obshchestva, XXXIV:2, Jakobson, 1905:177, 219. — Podismopsis subgen. Euraslobia Bel-Bienko, 1932a:51, 58.

Type of subgenus: Podismopsis (s. str.) altaica (Zub.).

♂ vertex narrow; its width between the eyes twice more than the width of the frontal ridge between the antennae. Eyes of the ♂ large; vertical diameter of the eye equal to or greater than the subocular groove. ♂ tegmina with a wide costal field; its greatest width 1.5-2 times more than the greatest width of the subcostal field. ♂ metasternum with a wide interspace between the lobes; its greatest width is usually 1.5-2 times greater than its length. ♀ ovipositor with short stout valves; dorso-outer margin of dorsal valve with 2 notches; ventro-outer margin of ventral valve with a sharp tooth at the base.

6 species are known, being distributed in the northern part of the European part of the U.S.S.R., over almost all of Siberia, in Bashkiria, in the Altai, Sakhalin, the Kuril Is., and also in Yugoslavia, Mongolia, Korea, and Japan.

- 1 (2). Frons slightly sloping. Frontal ridge in the ♂ nearly flat, slightly depressed only under the median ocellus. Vertex slightly projecting forward, strongly sloping. Facial carina effaced, sometimes hardly perceptible. Empodium between the claws of the ♀ tarsus small, not reaching or only reaching the middle of the claws. Length of body ♂ 13.5-16.0, ♀ 17-24 mm; tegmina ♂ 6.5-8.5, ♀ 2.5-4.0 mm. — Altai, nearly all southern Siberia; northern Mongolia, Korea. (Figure 942) *1. P. (s. str.) altaica (Zub.) — Altai short-winged grasshopper [Korotkokrylka altaiskaya].

Zubovskii, 1899-1900, Trudy Russkogo entomologicheskogo obshchestva, XXXIV:2 (Chrysochraon subgen. Podismopsis), Uvarov, 1925c:43, Bel-Bienko, 1932a:75, Figures 9-10, 14, Berezhkov, 1937: 34, 53, Tarbinskii, 1948:115. — ? gracilis Fischer-Waldheim, 1846:252 (Monopterus, partly). — altaicus Jakobson, 1905:177, 219 (Chrysochraon subgen. Podismopsis).
Biology: Bel-Bienko, 1928a:182.

- 2 (1). Frons strongly sloping. Frontal ridge in the ♂ either all depressed [or sunken] or depressed only in the middle part, but always distinctly so. Vertex strongly projecting forward, nearly horizontal. Facial carina sharp, well developed. Empodium between the claws of the ♀ tarsi large, distinctly extending beyond the middle of the claws.
- 3 (6). ♂ tegmina either lateral, narrow, short, barely reaching the fifth abdominal tergite, not medio-dorsally contiguous (Figure 943), or long and wide, nor quite reaching or reaching the tip of the abdomen and contiguous medio-dorsally then the lateral lobes of the pronotum are elongated and the length of a lobe is 1.5 times more than its greatest height; in the ♀ they are wide, the greatest width of a tegmen is 1.5-1.7 times more than the greatest width of the hind femur.
- 4 (5). ♂ tegmina lateral, short, narrow, barely reaching the fifth abdominal tergite, not contiguous on the medio-dorsal line; in the ♀ short; oval; the length of a tegmen is 1.25 times more than its greatest

width. Length of body ♂ 22.3-23.8, ♀ 21.3-27.5 mm; tegmina ♀ ♂ 8.1-9.3, ♀ 5-5.9 mm. — Southern part of the Maritime Territory (Figure 943). *2. P. (s. str.) gynaemorpha Ikonn.

Ikonnikov, 1911, *Ezhegodnik Zoologicheskogo muzeya Akademii Nauk*, XVI:247, Bei-Bienko, 1932a: 66, 68, Figure 8 (Podismopsis subgen Eurasiobia) — sp ? (♀P. gynaemorphae?) Ikonnikov, 1911, *ibidem*, XVI:248.

- 5 (4). ♂ tegmina long and wide, not quite reaching or reaching the tip of the abdomen, contiguous on the medio-dorsal line; in the ♀ lengthened the length of a tegmen is 1.75-twice more than the greatest width. Body of ♂ 19-22, ♀ 25-32 mm long; ♂ tegmina 11.5-12.0, ♀ 5.2-7.0 mm long. — Yakutia, Amur lowlands, Maritime Territory, Sakhalin, Kuril Is.; Japan. (Figure 944). *3. P. (s. str.) genicularis (Shr.)

Miram, 1933:21, 22. — genicularibus Shiraki, 1910:2, 16, 17 (Chrysochaon) Bei-Bienko, 1932a:59, 60, Figures 3-5 (Podismopsis subgen Eurasiobia)

- 6 (3). ♂ tegmina always long and wide, nearly reaching the tip of the abdomen; lateral lobes of ♂ pronotum always short; length of a lobe equal to or hardly more than its greatest height. ♂ tegmina narrow; greatest width of tegmina less than or equal to the greatest width of the hind femur, rarely much more than that width.

- 7 (10). ♀ vertex moderately wide; its width between the antennae. ♂ pronotum with nearly quadrate lateral lobes, length of a lateral lobe equal to or hardly more than its greatest height. ♂ tegmina nearly reaching the tip of the abdomen. ♀ ovipositor with a deep median notch (Figure 947) on the dorso-outer margin of the dorsal valves.

- 8 (9). Frontal "femur" [sic!, ? misprint for ridge] in the ♂ reaching the clypeus, strongly depressed for its whole length. ♀ antennae slender; length of a single median segment of the antenna 2.5 times more than its greatest width. Pronotum in the ♀ with a long anterior part; length of the anterior part of the pronotum 1.5 times more than the length of the posterior part of the pronotum taken along the median carina. ♂ tegmina with a narrow radial field, greatest width nearly equal to the greatest width of the subcostal field, rarely much greater than that of width. *4. P. (s. str.) poppiusi (Mir.) — Forest short-winged grasshopper [*Korotkokrylka lesnaya*].

- a(b). Eyes of ♀ large, the vertical diameter of an eye is nearly equal to the subocular groove. Hind femora in the ♂ very slender and graceful; length of the femur 5.5-6 times more than its greatest width. Length of body ♂ 15-18, ♀ 25-28 mm, tegmina ♂ 10-11, ♀ 3-4.6 mm. — The northern part of European U.S.S.R., and northwestern Siberia, nearly all of East Siberia. (Figures 945, 946). *4a. P. (s. str.) poppiusi poppiusi (Mir.)

— poppiusi Miram, 1906 1907, *Otv Finska Vet. Soc Forh.*, XLIX, 63 (Chrysochaon) Uvarov, 1925c 43, Bei-Bienko, 1932a:59, 62, Figures 2, 6-7, 13 (Podismopsis subgen. Eurasiobia) Miram, 1933 21, Figures 23, 25, Berezikov, 1937 34, 53, 83, Tarbinski, 1948 115 (Podismopsis subgen. Eurasiobia).

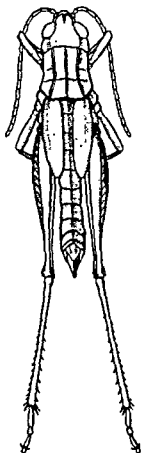


Figure 943. Podis-
mopsis (s. str.) gyn-
aemorpha Ikonn., ♂,
(After Bei-Bienko)

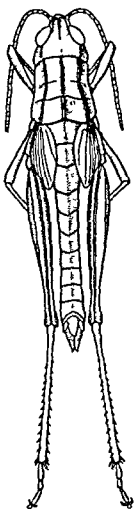


Figure 944. Podis-
mopsis (s. str.) gen-
icularis (Shir.), ♀,
(After Bei-Bienko)

- b(a). Eyes of ♀ small; vertical diameter of the eye $\frac{2}{3}$ the subocular groove. Hind femora in the ♂ stouter; length of the femur 3.6 times more than its greatest width. Length of body ♂ 15.1-15.7, ♀ 21.5-25.4 mm; tegmina ♂ 7.5-7.9, ♀ 3.5-4.5 mm. —Altai: Ongudai; Krasnoyarsk Territory: Lake Shira, Lake Uchum, the river Karysh (type from shore of Lake Shira).
- 9(8). Frontal ridge in the ♂ not reaching the clypeus, obliterated, slightly depressed only in the middle part. ♀ antennae stouter; the length of a single median segment of the antenna 3 times more than its greatest width. ♀ pronotum with a shorter anterior part; the length of the anterior part of the pronotum being 1.25 times more than that of the posterior part of the pronotum taken along the median field. ♂ tegmina with a wide radial field, its greatest width twice more than the greatest width of the subcostal field. Length of body ♂ 16.0-18.1, ♀ 23-25 mm, tegmina ♂ 10.5-11.0, ♀ 3.5-4.5 mm. —Yakutia. *5. P. (s. str.) jacuta Mir.

Miram, 1928, Materialy po Incheniyu ASSR, 24:11, Figures 1-2; Bel-Bienko, 1932a: 59 (Podis-
mopsis subgen. Eurasobis) Miram, 1933 21, 22.

- 10(7). ♀ vertex wide; its width between the eyes 3 times more than the width of the frontal ridge between the antennae. ♀ ovipositor with a shallow median notch (Figure 940) on the dorso-outer margin of the dorsal valves. ♂ not known. Length of body ♀ 21.6-25.8, tegmina 3.6-4.9 mm. —Southern Bashkiria; Irgizla, Uzunui cave, the Belaya river, Kapovskaya cave (type from Irgizla).
- *6. P. (s. str.) frontalis Mistshenko sp. n.

2. Subgenus Podismacris B.-Bienko

Bel-Bienko, 1932a: 51, 70

Type of subgenus Podismopsis (Podismacris) ussuriensis Ikonn

Vertex of ♂ wide, its width between the eyes 1.5-3 times more than the width of the frontal ridge between the antennae. ♂ eyes small, the vertical diameter of an eye is usually smaller than the subocular groove. Tegmina in the ♂ with a moderately wide costal field, its greatest width 1.5 times more than the greatest width of the subcostal field. Metasternum in the ♂ with a rather wide space between the lobes; its greatest width is always equal to its length. ♀ ovipositor with long narrow valves; the dorso-outer margin of the dorsal valve without a notch, only with small teeth, ventro-outer margin of the ventral valves straight, with small teeth, without a sharp tooth near the base.

Four species are known, being distributed in Yakutia, Khabarovsk and Maritime Territories, on the Greater and Lesser Shantar Islands, on the Kuril Islands, in North China (Manchuria), and in Korea

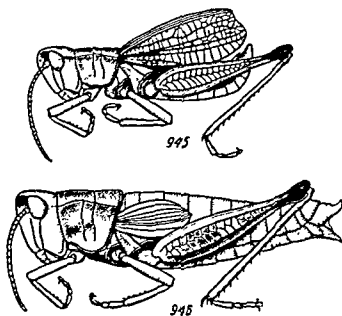


Figure 945, 946

945, 946—*Podismopsis* (*s. str.*) *poppiusi poppiusi* (Mir.).
 (After Bel-Bienko). 945—male; 946—female

- 1 (2). σ vertex wide; its width between the eyes nearly 3 times more than the width of the frontal ridge between the antennae. φ pronotum with a sharp notch in the middle of the posterior margin; lateral aspects of the posterior margin arcuately projecting. φ tegmina with the apex distinctly produced toward the posterior margin. Epimeres of mesothorax in the σ with dense coarse deep punctures. Supraanal plate in the φ nearly smooth, with 2 indistinct nearly transverse rugae and with a hardly perceptible longitudinal depression in the middle. Subgenital plate in the σ long; its length twice more than its greatest width (Figure 948)

- a(b). Frontal ridge in the σ near the median ocellus compressed [or constricted]. φ antennae slender; the length of a single median segment of the antenna 2.5-3 times more than its greatest width. σ pronotum in the posterior part of the lateral lobes with very small indistinct rugae. Coarser [or larger]. Length of body σ 17.5-20.0, φ 23.5-31.0 mm; tegmina σ 8.2-12.5, φ 4.5-5.0 mm. -South part of Maritime Territory; North China; Manchuria; Korea *1a. P. (P.) ussuriensis Ikonn.

Bel-Bienko, 1932a:70. -ussuriensis Ikonnikov, 1911, Ezhegodnik Zoologicheskogo muzeya Akademii Nauk, XVI:246, Bel-Bienko, 1932a:71.

- b(a). Frontal ridge in the σ near the median ocellus not compressed [or constricted]. φ antennae stouter, length of a single median segment of the antenna twice more than its greatest width. σ pronotum in the posterior part of the lateral lobes with distinct coarse deep punctures. Smaller. Length of body σ 15-17, φ 21-24 mm; tegmina σ 8.5-9.1, φ 4.0-4.1 mm. -Basin of Zeya, lower part of the Amur, North China; northern Manchuria. *1b. P. (P.) ussuriensis micra B.-Bienko.

Bel-Bienko, 1932a:70, 73.

- 2 (1). Vertex in the σ narrower, its width between the eyes 1.5-2 times more than the width of the frontal ridge between the antennae. φ pronotum with hardly perceptible depression in the middle of the posterior margin, lateral sides of posterior margin straight. φ tegmina with the apex usually situated in the middle of the tegmina, sometimes the apex is weakly produced to the posterior margin, then the epimeres of the φ mesosternum with indistinct strongly obliterated punctures and rugae. Supraanal plate in the σ with 2 distinct longitudinal carinae and with a distinct wide longitudinal depression in the middle. σ subgenital plate short; its length nearly equal to its greatest width (Figure 949).
- 3 (4). σ pronotum in the anterior part with distinctly concave lateral carinae; the greatest width of the anterior part of the pronotum part (Figure 950). φ tegmina short; length of a tegmen 1.5 times more than its greatest width; apex distinctly produced to

the posterior margin. Length of body ♂ 15.0-16.8, ♀ 19.0-22.7 mm; tegmina ♂ 9.0-9.5, ♀ 3.1-3.5 mm. — Yakutia *2. P. (P.) gelida Mir.

Miram, 1931, Zool. Anz., XCII:40, Figures 1-3, Bel-Bienko, 1932a:70, 73, Miram, 1933:21, 22, Figures 24, 26.

- 4 (3). ♂ pronotum in the anterior part with hardly perceptibly concave lateral carinae; the greatest width of the anterior part of the pronotum between the lateral carinae is nearly equal to its narrowest part (Figure 951). ♀ tegmina longer; the length of a tegmen twice more than its greatest width; apex not produced to the posterior margin, situated in the middle of the tegmen.
- 5 (6). Genae in both sexes with coarse punctures in the lower part. ♂ pronotum well-proportioned, with hardly visibly concave, nearly straight lateral carinae (Figure 951). ♀ pronotum with a sinuous ventral margin on the lateral lobes (Figure 952). ♀ tegmina extending beyond the posterior margin of the second abdominal tergite. *3. P. (P.) insularis Mistshenko sp. n.
- 426 α(b). Vertex in both sexes moderately wide; its width in the ♂ between the eyes 1.5 times, in the ♀ twice more than the width of the frontal ridge between the antennae. Length of body ♂ 15.5, ♀ 16.1 mm; tegmina ♂ 8.7, ♀ 5.1 mm. — Greater Shantar Islands: Amuka River *3a. P. (P.) insularis insularis Mistshenko subsp. n.
- b(a). ♂ vertex wide; its width between the eyes twice more than the width of the frontal ridge between the antennae. ♂ Unknown. Length of body ♂ 16.7; tegmina 8.8 mm. — Lesser Shantar Islands *3b. P. (P.) insularis shantariensis Mistshenko subsp. n.
- 6 (5). Genae in the ♀ with the lower part smooth. ♀ pronotum with rounded lower margin on the lateral lobes (Figure 953). Tegmina in the ♀ reaching only the middle of the second abdominal tergite. ♂ unknown. Length of body ♀ 25.6 mm; tegmina 5.1 mm. — Kuril Islands: Etorofu Island *4. P. (P.) konakovi B.-Bienko

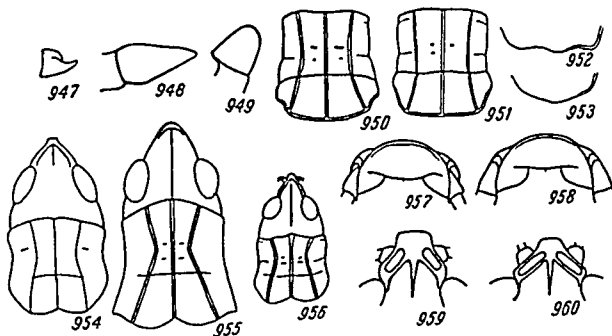
Bel-Bienko, 1943, Zapiski Leningradskogo sel'skokhozyaystvennogo instituta, 5:130, Figure 10a

127. Genus Ptygonotus Tarb.

Tarbinskii, 1927, Ann. Mag. Nat. Hist., (9), XX:497.

Type of genus: Ptygonotus semenovi Tarb.

Head short. Eyes situated in the middle part of the head. Vertex short. No foveolae. Antennae filiform. Pronotum with distinct, medially concave, lateral carinae the median carina intersected by only one (the posterior) transverse groove; posterior margin with a sharp triangular notch in the middle. ♂ tegmina hardly extending beyond the posterior margin of the second abdominal tergite never contiguous on the medio-dorsal line; in the ♀ narrow, the length of a tegmen 3.5-4 times more than its greatest width. Tarsi with well developed empodium between the claws, extending beyond their middle. Hind femora with obtuse-angled broadly rounded distal end



Figures 947-960
(No. 947-953, 957-960, Original)

947—Podismopsis (s. str.) poppiusi femoralis Mistshenko subsp. n., ♀, paratype, left upper notch of ovipositor from side, 948—P. (Podismacris) ussuriensis ussuriensis Ikonn., ♂, subgenital plate from side; 949—P. (P.) gelida Mir., ♂, genital plate from side, 950—P. (P.) gelida Mir., ♂, pronotum from above, 951—P. (P.) insularis shantariensis Mistshenko sp. et subsp. n., ♂, type, pronotum from above, 952—P. (P.) insularis insularis Mistshenko sp. et subsp. n., ♀, allo-type, ventral margin of left lateral lobe of pronotum, 953—P. (P.) konakovi B.-Buenko, ♀, ventral margin of left lateral lobe of pronotum 954—Ptygonotus tarbinskii Uv., ♂, head and pronotum from above (after Uvarov) 955—P. semenovi semenovi Tarb., ♂, head and pronotum from above (after Tarbinskii) 956—P. gurneyi Chang, ♂, head and pronotum from above (modified, after Chang), 957—P. semenovi semenovi Tarb., ♂, mesosternum, 958—P. semenovi fusca (Pall.), ♀, vertex from above, 959—Arcyptera fusca (Pall.), ♀, vertex from above, 960—A. coreana Shir., ♀, vertex from above

on the ventro-outer genicular lobes; dorsal genicular lobes rounded. Prosternum smooth. Ovipositor in the ♀ with short stout valves; the dorso-outer margin of the dorsal valve with only one preapical notch; the ventral valves with a distinct tooth at the base of the ventro-outer margin.

3 species, living in eastern China, are known.

- 1 (2). ♂ vertex short; the length of its lateral margin, taken from the anterior margin of the eye to the fastigium is distinctly less than the horizontal diameter of the eye. ♂ pronotum short; anterior margin with a distinct triangular notch in the middle; lateral carinae in the posterior part weakly roundly projecting, nearly parallel to each other (Figure 954). ♀ unknown. Length of body ♂ 14 mm; tegmina 4 mm. —China: Szechwan (According to Uvarov) 1. P. tarbinskii Uv.

—tarbinskii Uvarov, 1930, Ann. Mag. Nat. Hist., (10), V:252, Figure.*

- 2 (1). ♂ vertex long; the length of its lateral margin taken from the anterior margin of the eye to the fastigium is significantly more than the horizontal diameter of the eye. Pronotum in both sexes long: anterior margin rounded, straight, or distinctly projecting forward in the middle (Figures 955, 956); lateral carinae in the posterior part strongly diverging toward the posterior margin (Figures 955, 956).

- 427 3 (4). Frontal ridge in both sexes distinctly depressed, beginning from the base of the antennae to the clypeus. ♂ pronotum with a straight anterior margin which sometimes is weakly triangularly projecting in the middle. ♂ tegmina extending beyond the third abdominal tergite, wide; length of a tegmen 2.5 times more than its greatest width. Hind femora in the ♂ rather stout; length of a femur 4 times more than its greatest width. Length of body ♂ 11-13, ♀ 21.4 mm; tegmina ♂ 3.5, ♀ 3-4.25 mm. China:—Szechwan (According to Chang) 2. P. gurneyi Chang.

Chang, 1937, Notes Entom. Chinoise, IV, 8:184, tab. IV, Figures 1-2.

- 4 (3). Frontal ridge in both sexes flat above the median ocellus, below it weakly depressed. ♂ pronotum with rounded anterior margin. ♂ tegmina extending beyond the posterior margin of the second abdominal tergite; length of a tegmen 4 times more than its greatest width. Hind femora in the ♂ slender [and graceful]; length of the femur 5 times more than its greatest width. 3. P. semenovi Tarb.
- 428 a(b). ♀ antennae short; the length of a separate median segment is equal to or hardly more than its greatest width. ♀ pronotum with strongly concave lateral carinae; its greatest width between the lateral carinae is twice more than its narrowest part. ♂ mesosternum with a wide space between the lobes; its narrowest part is distinctly more than the narrowest part of the mesosternal lobe (Figure 957). Length of body ♂ 14, ♀ 22 mm; tegmina ♂ 3.5, ♀ 4 mm. —China: Szechwan 3a. P. semenovi semenovi Tarb.

—semenovi Tarbinskii, 1927, Ann. Mag. Nat. Hist., (9), XX:497, Figure 5.

* [No. of Figure missing in the Russian.]

- b(a). ♀ antennae longer; the length of a separate median segment of the antenna is 1.5 times more than its greatest width. ♀ pronotum with less concave lateral carinae, its greatest width between the lateral carinae is 1.5 times more than its narrowest part. ♂ mesosternum with a narrower space between the lobes its narrowest part is equal to [the] narrowest part of the mesothoracic lobes (Figure 958). Length of body ♂ 14.3 - 15.2, ♀ 22.2-27.2 mm; tegmina ♂ 3.1-3.3, ♀ 3.7-4.1 mm -China: Kansu
 3n. P. semenovi antennatus Mistshenko subsp. n.

-Jacobsoni Sjöstedt, 1933, Arkiv Zool., 25A, No. 3 22 (Chorthippus (Stauroderus)).
 (not Ikonnikov) †

128. Genus Caucasippus Uv.

Uvarov, 1927, Ann. Mag. Nat. Hist., (9), XX:195, Tarbinskii, 1940 23, 160 -Podisma Jakobson, 1905 173, 203, 309 (partim). -Melanoplus Doyrar-Zapol'skii, 1933:254, 257, 262, 264 (partim).

Head short. Eyes situated in the middle part of the head. Vertex short. No foveolae, they have been replaced by lateral broad flat areas. Antennae stout, short, compressed. Pronotum with weak lateral carinae; median carina intersected by 3 transverse grooves; posterior margin obtusely notched. Tegmina lateral, strongly shortened. Hind femora with rounded dorsal genicular lobes. Tarsi with well developed empodium between the claws. Tympanal organ on the first abdominal tergite semi-lunate, partly open. ♀ ovipositor with ventral valves unarmed. (According to Uvarov).

Only one species, peculiar to the Kazbek Region in the Caucasus, is known.

- 1 (1). ♀ pronotum rugose; lateral carinae in the anterior part slightly convergent, in the middle and posterior parts strongly divergent. ♀ tegmina reaching the middle of the first tergite of the abdomen. Hind femora in both sexes with oblique blackish bands. Hind tibia in the ♂ bright red, but in the ♀ dirty-green, on the inner aspect reddish, blackish at the apex. Length of body ♂ 21.5, ♀ 23 mm, tegmina ♂ 7, ♀ 3 mm. -North Caucasus: Kazbek and its environs. (According to Fischer-Waldheim)
 *1. C. rufipes (F.-W.)

- 429 Fischer Waldheim, 1846:249 (Podisma) Jakobson, 1905:314 (Podisma), Tarbinskii, 1940 36
 (Podisma) Mithchenko, 1950b 184 -pedestris Uvarov, 1927, Ann. Mag. Nat. Hist., (9), XX 195,
 Figure 2, Tarbinskii, 1940 24

129. Genus Arcyptera Serv.

Jakobson, 1905 166, 185, 242 (partim), Chopard, 1922 131, 156 (partim), Uvarov, 1927a 58, 94 (partim), Miram, 1933 20, 33 (partim), Berezkhov, 1937 28, 34 (partim), Tarbinskii, 1940 28, 164, Tarbinskii, 1948 114, 121. -Oedipoda subgen. Arcyptera Serville, 1839, Hist. Nat. Insectes Orth.:743 -Stethophy-
ma Fischer, 1853, Orth. Eur. 297 (partim), Brunner-Wattenwyl, 1882-84, 138 (partim), Obenberger, 1926 62, 72 (partim) -Stethophyma Fischer, 1853, Orth. Eur.:357 (partim)

Type of genus: Arcyptera fusca (Pall.).

 † Cited by Sjöstedt for Kansu under the name of Chorthippus (Stauroderus) Jacobsoni Ikonn.

Head short. Eyes situated in the middle part of the head. Vertex short. Foveolae very weakly depressed, flat, punctate [or pointed], readily seen from above. Antennae filiform. Pronotum in the anterior part with nearly straight or weakly concave lateral carinae. posterior margin distinctly projecting. Tegmina with strongly widened cubital field; its greatest width in the ♂ 4, in the ♀ nearly twice more than the narrowest part of the apical part of the median field. Wings nearly all darkened. Hind femora with rounded dorsal genicular lobes. Metasternum in the posterior part with distinctly separated lobes. Tympanal organ on the first abdominal tergite well developed.

3 species living in Europe, in the Caucasus, and in northern Asia, are known.

- 1 (2). Frontal ridge in the ♀ beginning with the median ocellus completely obliterated. ♂ vertex with straight lateral margins. Foveolae in the ♂ widely separated (Figure 959). ♀ pronotum with lateral carinae distinctly divergent toward the posterior margin; the greatest width of the pronotum between the lateral carinae is significantly more than its narrowest part . . . *1. A. fusca (Pall.)—Motley 'young mare' grasshopper [Kobylyka pestraya].
- a(b). Frontal ridge in both sexes wide, its width between the antennae in the ♂ 3 times, in the ♀ nearly 4 times more than the width of the first antennal segment. Pronotum usually with 2 light longitudinal bands near the lateral carinae. Hind tibiae on the dorsal aspect with a black base. Length of body ♂ 23-31.5, ♀ 29-40 mm; tegmina ♂ 20-27.5, ♀ 14-20 mm; f. macroptera 28 mm. — Southern regions of the European part of the U.S.S.R., the Caucasus, Kazakhstan, western Siberia, Altai, Yakutia; western Europe, Mongolia. Sometimes slightly injurious in the eastern part of the European part of the U.S.S.R., in Siberia, and in western Europe to cereals, maize, potato, alfalfa and other agricultural crops . . . *1a. A. fusca fusca (Pall.)

—fuscus Pallas, 1773, Reisen durch verschiedene Provinzen des Russischen Reiches, II:724 (Gryllus Locusta). —variegatus Sulzer, 1776, Abgekürzte Geschichte der Insecten, etc. 84, tab. 9, Figure 4 (Gryllus Locusta). —versicolor Gmelin, 1788, Syn. Nat., I (4):2082 (Gryllus). —cothurnatus Creutzer, 1799, Int. Versuche 129, tab. 3, Figures 32a-c (Gryllus). —nympha Stoll, 1813, Représ. Spectres ou Phasmes, etc.:23, tab. 10b, Figure 36 (Gryllus Locusta). —fusca Jakobson, 1905:185, 243 (partly), Chopard, 1922 131, 157, Figures 347, 394, Uvarov, 1927a:94, 95, Uvarov, 1926b:283, Figure 99; Miram, 1933:33, Berezikov, 1937:45, 63, Tarbinskii, 1940:28, 223, Tarbinskii, 1948:121. —fuscum Jakobson, 1905, Plate V (Stethophyma). Obenberger, 1926:73, tab. II, Figure 84, tab. III, Figure 128 (Stethophyma).

Biology: Bel-Bienko, 1925a:193, Bel-Bienko, 1932b 22, Rubtsov, 1932b:22, 23, Predtechenski, Zhdanov, and Popova, 1935:85; Zimin, 1938:34, 63, Plate II, Figure 11; Mishchenko, 1949b:160.

- 430 b(a). Frontal ridge in both sexes narrower; its width between the antennae in the ♂ twice, in the ♀ 2.5 times more than the width of the first antennal segment. Pronotum monocolored, without light lateral bands. Hind tibiae in the ♀ dorsally with a light base. Length of body ♂ 30-33, ♀ 40-42 mm; tegmina ♂ 24.5-27.0, ♀ 22.0-23.5 mm. —East Siberia east to the Maritime Territory; Mongolia, northern China, (Manchuria) (?), Korea (?). A pest in East Siberia and in the Maritime Territory. . . . *1b. A. fusca albogenuiculata Ikonn.

Miram, 1933 33, 34 —fuscum Brunner-Wattenwyl, 1882 139, 141 (Stethophyma) (partim). —
fusca Jakobson, 1905 185, 243 (partim). —fusca var albogeniculata Ikonnikov, 1911, Ezhegodnik
 Zoologicheskogo muzeya Akademii Nauk, XVI 250.
 Biology: Predchichenski, Zhdanov, and Popova, 1935 86

- 2 (1). Frontal ridge in the ♀ effaced only halfway between the median ocellus and the clypeus. ♂ vertex with distinctly concave lateral margins. ♂ foveolae close together (Figure 960). ♀ pronotum with nearly parallel lateral carinae, the greatest width of the pronotum between the lateral carinae is hardly greater than its narrowest part. Length of body ♂ 27.5-30, ♀ 34.5-36 mm, tegmina ♂ 22.5-25, ♀ 21.5-22.5 mm. —Korea; northeastern China, Manchuria, Hupei, Kiangsu 2. A. coreana Shir.

Shiraki 1930, Trans. Nat. Hist. Soc. Formosa, XX 111:328 —ecarinata Sjögstedt, 1933, Arkiv Zool., 25A, No. 3 19

130. Genus Pararcpytera Tarb.

Tarbinski, 1940 28, 164, 190 Tarbinski, 1945 114, 121. —Stethophyma Brunner Wattenwyl, 1882, 84, 138 (partim) —Arcyptera Jakobson, 1905 166, 185, 242 (partim) Chopard, 1922 131, 156 (partim), Uvarov, 1927a:58, 94 (partim), Miram, 1933 20, 33 (partim), Berezhkov, 1937 28, 44 (partim) —Arcyptera subgen. Pararcpytera Tarbinski, 1930, Zool. Anz., XCI:334
 Type of genus: Pararcpytera microptera (F -W)

Head short. Eyes situated in the middle part of the head. Vertex short. Foveolae distinctly depressed, smooth, readily visible from above. Antennae filiform. Pronotum usually with strongly concave lateral carinae in the anterior part, sometimes they are nearly straight, posterior angle distinctly projecting. Tegmina with strongly widened cubital field, its greatest width 1.25 times more than the narrowest part of the apical part of the median field. Wings colorless. Hind femora with rounded genicular lobes. Metasternum posteriorly with the lobes distinctly separated. Tympanal organ on the first abdominal tergite well developed.

Around 9 species are known, being distributed in southwestern Africa, in Europe, Hither Asia, in the Caucasus, Kazakhstan, in the mountains of Middle Asia, Siberia, on the Greater Shantar Islands, in Mongolia and northern China.

- 431 1 (2). ♀ vertex very wide, its greatest width before the eyes nearly twice more than its lateral margin (Figure 961) Pronotum in both sexes with very weakly anteriorly concave lateral carinae, the greatest width of the pronotum between the lateral carinae in the ♂ is hardly more than its narrowest part but in the ♀ it is 1.25 times greater ♂ tegmina with a wide cubital field, its greatest width 1.5 times more than the narrowest part of the median field Body ♂ 24.7-30.2, ♀ 34.8-45.3 mm long, tegmina ♂ 13.0-15.3, ♀ 13.9-21.2 mm long. —Southeastern part of western Europe. Sometimes a pest of different crops in the eastern part of Italy. 1. P. brevipennis (Br -W)

.
 Jakobson, 1905 185, 244 (Arcyptera). —variegatum var brevipennis Brunner-Wattenwyl 1861: Verh. k. k. zool.-bot. Ges. Wien, XI 306 (Stethophyma) —brevipennis Brunner Wattenwyl, 1882: 139m 142, Figure 31 (Stethophyma) Oberberger, 1926:73 (Stethophyma)
 Biology: Bez Benko, 1922b:21.

- 2 (1). ♀ vertex narrower; its greatest width before the eyes 1.5 times more than its lateral margin (Figure 962). Pronotum is both sexes with strongly angularly anteriorly concave lateral carinae; the greatest width of the pronotum between the lateral carinae is 1.50-1.75 times more than its narrowest part. ♂ tegmina with a narrower cubital field; its greatest width 1.5 times more than the narrowest part of the median field.
- 3 (4). ♀ tegmina short, hardly reaching the third abdominal tergite, rarely extending beyond it. ♂ mesosternum with a wide interspace between the lobes; its narrowest part considerably more than its length. All the distal end of the hind femur and the base of the hind tibia in the ♂ always black. Body ♂ 22.2-30.0, ♀ 35-45 mm long; tegmina ♂ 9-13, ♀ 7-13 mm long. —Balkan Peninsula, Asia Minor 2. P. labiata (Brullé)

Brullé, 1832, Insectes, Expédition Scientifique de Morée, III 95, tab. XXX, Figure 6 (Podisma). Jakobson, 1905:185, 244 (Arceptera). —tibialis Fieber, 1853, Lotos, III:99 (Arceptera). —labiatum Brunner-Wattenwyl, 1882:139, 143 (Stethophyma).

- 4 (3). ♀ tegmina long, usually extending far beyond the middle of the hind femora, sometimes only reaching it. ♂ mesosternum with a narrower interspace between the lobes; its narrowest part less than or equal to its length, sometimes distinctly more than such length, then the ventral genicular lobes on the outer and inner aspects of the hind femur and the base of the hind tibia in the ♂ are light *3. P. microptera (F.-W.)
- a(n). Tegmina in both sexes always reaching 3/4 of the length of the hind femur, sometimes reaching or extending beyond its distal end.
- b(m). Tegmina in the ♂ with a narrow costal field, its greatest width 1.24-2 times more than the greatest width of the subcostal field; in the ♀ with a wide cubital field, its greatest width nearly 1.5 times more than the greatest width of the median field, sometimes equal to it, then the median field of the tegmina has a distinct spurious median vein. Hind femur in the ♂ with a light ventral genicular lobes on the inner and outer aspects, sometimes they only have a dark preapical spot.
- c(h). Tegmina in both sexes always reaching the tip of the abdomen and nearly reaching or extending beyond the distal end of the hind femora. Hind femur in the ♂ with a light ventral genicular lobes on the inner and outer aspects.
- 432 d(g). Pronotum in both sexes with a long posterior part; the greatest width of this part between the lateral carinas is 1.25-1.5 times more than the length of the posterior part (Figure 963).
- e(n). ♂ tegmina with a very narrow costal field; its greatest width hardly more than the greatest width of the precostal field; the median field of the ♀ tegmen without any traces of a spurious median vein. Body ♂ 19-22 mm, ♀ 24-29 mm long; tegmina ♂ 13-18, ♀ 17-21 mm long. —Southern regions of the European part of the U.S.S.R., North Caucasus, northern Kazakhstan, western Siberia, southern part of western Europe, northwestern Mongolia, northwestern China (?). Seriously injures cereal grasses, potato, tobacco, cotton, medicinal plants, pastures, and hay fields in nearly the whole area of its distribution. *3a. P. microptera microptera (F.-W.)

Uvarov, 1927a 95, Figures 1-3 (*Arctoptera*), Tarbinskii, 1940 28, 223, Figures 102-104, 109, 110, 174, Tarbinskii, 1943:121, Figures 14, 124 — *microptera* Fischer-Waldheim, 1833, Bull. Soc. Nat. Moscou, VI 384 (*Oedipoda*). Uvarov, 1925b-64, 65, Figures 1, 2, 5 (*Arctoptera*) — *flavicosta* Fischer, 1853, Figure 98 (*Arctoptera*) Berzhkov, 1937:45, 64, Figures 1-3 (*Arctoptera*) — *flavicosta* Fischer, 1853, Orth. Eur. 1353, tab. XVIII, Figures 12, 12a (*Stenobothrus* subgen *Stauronotus*), Brunner-Wattenwyl, 1852 139, 143 (*Stethophyma*) Jakobson, 1905 185, 245, Plate V (*Arctoptera*) Chopard, 1922 131, 157 (*Arctoptera*) Obenberger, 1926:73 (*Stethophyma*). — *flavicosta* var *turgalca* Adelung, 1906 *Materialy k poznaniyu fauny i flory Rossiiskoi Imperii*, Otdelenie zoologii (Fauna and Flora of the Russian Empire Department of Zoology), VII:85 (*Stethophyma*) Biology: Dovnar-Zapolskii, 1924:5, Bei-Blenko, 1932b 22, Rubtsov, 1932b 23, 24 Predtechenskii, Zhdanov, and Popova, 1935:78, Bei-Blenko, 1937:106, Zimin, 1938:34, 63, Plate V, Figure 29; Mulschenko, 1939b:159.

- f(e). ♂ tegmen with a wider costal field, its greatest width 1.5 times more than the greatest width of the precostal field, the median field of the ♀ tegmen with rather distinct spurious median vein. Body of ♂ 19.4, ♀ 27.2 mm long. tegmina ♂ 17.9, ♀ 20.7 mm long. Body of ♂ 19.4, ♀ 27.2 mm long.
— Greater Shantar Islands

- g(d). Pronotum in both sexes with a short wide posterior part, the greatest width of the posterior part between the lateral carinae nearly twice more than the length of that part. Length of body ♂ 21.5-23.0, ♀ 27.5-31.0 mm; tegmina ♂ 14.8-15.3, ♀ 16.6-17.2 mm.
— South Crimea *3b. *P. microptera insularis* Mistshenko subsp. n.
*3c. *P. microptera jallensis* (Mir.)

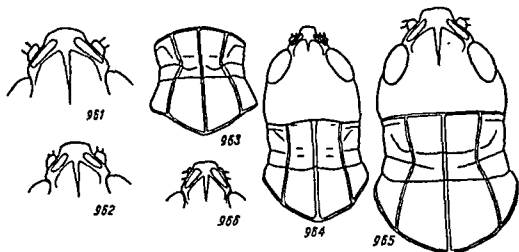
— *microptera* morph *jallensis* Miram, 1927, Doklady AN SSSR, (A) 109 (*Arctoptera*)

- h(c). Tegmina in both sexes do not reach by far the tip of the abdomen and reach only 4/5 of the length of the hind femur, sometimes in the ♂ they reach or extend beyond the distal end of the hind femur, then the ventral genicular lobes on the outer and inner aspects of the hind femur have a dark preapical spot.

- i(j). Head in both sexes large, strongly projecting on the sides, its length nearly equals the length of the pronotum (Figure 964). ♂ pronotum between the transverse groove with distinct lateral carinae. ♀ tegmen with a narrow costal field, its greatest width 1.5-2 times more than the greatest width of the subcostal field median field with a distinct spurious median vein. Length of body ♂ 18.1-21.7, ♀ 20.6-29.8 mm, tegmina ♂ 11.2-12.6, ♀ 12.8-15.1 mm. — Altai Territory: Ongudai, Kural Steppe. (Type from Ongudai). Injures cereal grasses in the Altai.
*3d. *P. microptera altaica* Mistshenko subsp. n.

Biology Bei-Blenko, 1932b 22(partim) (as *Arctoptera microptera crassiuscula* (Zub))

- j(i). Head in both sexes small, laterally compressed its length nearly 4/7 that of the pronotum (Figure 965) Pronotum in the ♂ with lateral carinae effaced between the transverse grooves. ♀ tegmina with a wide costal field, its greatest width 3-4 times more than the greatest width of the subcostal field, median field without spurious median vein.



Figures 961-966
Original

961—Pararcyptera brevipennis (Br.-W.), ♀, vertex from above; 962—P. labiata (Brullé), ♀, vertex from above; 963—P. microptera insularis Mistshenko subsp. n., ♂, type, pronotum from above; 964—P. microptera altaica Mistshenko subsp. n., ♀, paratype, head and pronotum from above; 965—P. microptera crassiuscula (Zub.), ♀, head and pronotum from above; 966—P. microptera turanica (Uv.), ♂, vertex from above.

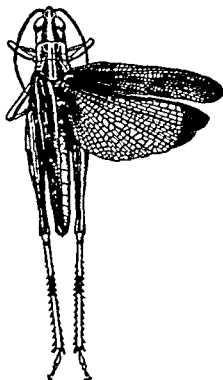


Figure 967

967—Ramburiella turcomana (F.W.), ♀ (After
Bel-Benko).

- k(l). ♀ pronotum with lateral carinae hardly convergent toward the median carina in the anterior part, the greatest width of the pronotum between the lateral carinae nearly 1.5 times more than its narrowest part (Figure 967). ♂ tegmina do not reach by far the distal end of the hind femora. Hind femora in the ♂ slender [or graceful], length of femur 4 times more than its greatest width. Length of body ♂ 22-24, ♀ 30.5-32.0 mm; tegmina ♂ 14.3-14.0, [sic!] ♀ 16.0-17.5 mm. — Mountains of southeastern Kazakhstan and Kirghizia northwestern Mongolia. Injures cereal grasses in Kirghizia. . . .
 *3c. P. microptera crassiuscula (Zub.)

Uvarov, 1927a-95, 96 (Arcyptera) Berezikov, 1937 64 (Arcyptera) — flavicosta var crassiuscula Zubovskii, 1899, Ezhgodnik Zoologicheskogo muzeia Akademii Nauk, III 95 (Stethophyma), Jakobson, 1905 185, 245 (Arcyptera).
 Biology Bel-Bienko 1932b 22 (partim) Predtechenskii, Zhdanov, and Popova, 1935/79 Mishchenko, 1949b 159

- 434 l(k) Pronotum in the ♀ with the lateral carinae strongly convergent toward the median carina in the anterior part, the greatest width of the pronotum between the lateral carinae twice more than its narrowest part. ♂ tegmina reaching or extending beyond the distal end of the hind femora. Hind femur in the ♂ stouter, length of femur of the hind femora. Length of body ♂ 24.0-3.3-3.5 times more than its greatest width. Length of body ♂ 24.0-27.5, ♀ 30-35 mm, tegmina ♂ 15.9-19.5, ♀ 17.7-22.5 mm f. macroptera ♂ 23.5, ♀ 30.5 mm. — Dagestan, Transcaucasia, northern Iran. . . . 3f. P. m. transcaucasica (Uv.) — Transcaucasian crossed 'young mare' grasshopper [Kobylka krestovaya zakavkazskaya].

Tarbinskii, 1940 28, 190 — flavicosta transcaucasica Uvarov, 1917, Izvestiya Kavkazskogo muzeia
 XI 281 (Arcyptera)

- m(b). Tegmina in the ♂ with a wide costal field, its greatest width 2.5-3.0 times more than the greatest width of the subcostal field, in the ♀ with a narrow cubital field, its greatest width nearly equal to the greatest width of the median field which is always without the spurious median vein. Hind femora in the ♂ with black ventral genicular lobe on the outer and inner aspects. Length of body ♂ 23.3-33.0, ♀ 38-39 mm, tegmina ♂ 18-21, ♀ 17.0-20.5 mm — East Siberia, Mongolia, northern China Manchuria Injures cereal grasses in East Siberia. . . .
 *3g. P. microptera meridionalis (Ikonn.)

— flavicosta var meridionalis Ikonnikov, 1911 Ezhgodnik Zoologicheskogo muzeia Akademii Nauk, XVI 251 (Arcyptera). — flavicosta sibirica Uvarov 1914 Ezhgodnik Zoologicheskogo muzeia Akademii Nauk, XIX:170 (Arcyptera) (syn. nov.) — microptera sibirica Miram 1933 33 34 (Arcyptera).
 Biology Bel-Bienko, 19325 22 Rubtsov, 1932c 23, 24 Predtechenskii, Zhdanov and Popova, 1935/79.

- n(a). Tegmina in both sexes reaching only 1/2 - 2/3 of the length of the hind femur.
 o(p). Foveolae in both sexes wide, nearly contiguous at the fastigium the length of the foveolae is twice their greatest width ♂ pronotum with distinct lateral carinae Hind femur in both sexes

usually with a dark preapical spot on the ventral genicular lobe on the inner and outer aspects. Length of body ♂ 20.4-23.6, ♀ 31.2-32.2 mm; tegmina ♂ 10.6-12.7, ♀ 13.7-13.9 mm. —Northern Iran: Elburz 3h. P. microptera elbursiana (B. -Blenko).

Bel-Bienko, 1948, Proc. R. Ent. Soc. Lond., (B), XVII:69 (Arcyptera).

- p(o). Foveolae in both sexes widely separated at the fastigium (Figure 966), narrow; length of a pit 2.5-3 times more than its greatest width. ♂ pronotum with obsolete lateral carinae. Hind femur in both sexes with the inner and outer aspects of the ventral genicular lobes light, without dark preapical spot. Length of body ♂ 22.5-25, ♀ 31.5-35.0 mm; tegmina ♂ 11.5-12.5, ♀ 10.5-14.0 mm. —Mountains of southern Kazakhstan and Middle Asia. Injures millet and "bogor" † wheat in the mountains of Middle Asia *31. P. microptera turanica (Uv.)

Uvarov, 1927a:95, 96 (Arcyptera). —flavicoma turanica Uvarov, 1925, Journ. Bomb. Nat.

Hist. Soc., XXX:260 (Arcyptera).

Biology: Bel-Bienko, 1932b:23, Predtechenski, Zhdanov, and Popova, 1935:79, Mishchenko, 1949b:159.

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131. Genus Ramburiella I. Bol.

I. Bolivar, 1906, Bol. Soc. Esp. Hist. Nat., VI:393, Chopard, 1922:158, Uvarov, 1927a:58, 96, Tarbinski, 1940:28, 165, 191, Tarbinski, 1948:114, 121. —Stethophyma Brunner-Wattenwyl, 1882:84, 138 (partly). —Ramburia I. Bolivar, 1897, Actas Soc. Esp. 168 (not Robineau Desvoidy). —Arcyptera Jakobson, 1905:166, 185, 242 (partly). —Pallasiella Kirby, 1910, III:168 (partly).

Type of genus: Ramburiella hispanica (Ramb.), southern France, Spain, North Africa.

Head short. Eyes situated in the middle part of the head. Vertex short and wide; its width between the eyes twice more than the width of the frontal ridge between the antennae, its lateral margins short, sometimes not extending onto the occiput. Foveolae nearly completely visible when examined from the top. Occiput smooth, without a [sic!] median margin. Antennae filiform. Pronotum with weak lateral carinae, obsolete in its median part and intersected by all 3 transverse grooves; posterior margin rounded projecting. Tegmina well developed; median field with a spurious median vein; cubital field moderately wide, its greatest width less than, equal to, or hardly more than the narrowest part of the apical part of the median field. Hind femora with rounded dorsal genicular lobes. Hind tibiae with a short ventral spur on the inner aspect: its length only 1.25-1.5 times more than the length of the dorsal inner spur. Metasternum posteriorly usually with contiguous lobes, sometimes slightly separated in the ♀. Tympanal organ on the first abdominal tergite well developed.

Four species are known, being distributed in northwestern Africa, in the southwestern part of western Europe, in the Crimea, in the southeastern part of the European part of the U.S.S.R., in Kazakhstan, the Caucasus, Hither and Middle Asia, in Iran and in western Pakistan.

† (Crops not requiring watering in irrigation areas.)

- 1(4). Wings in both sexes with a dark apical spot. Hind femur in the ♂ with a black apex, and in the ♀ with a preapical dark spot on the inner aspect. Hind tibia in both sexes with a narrow, nearly complete black ring near the base and with a wide dark belt near the middle.
- 2(3). Foveolae in both sexes flat [or horizontal], sharpened, their margins obsolete. ♀ ovipositor with sharply tuberculose pads on the ventral valves. Length of body ♂ 25.5-33.0, ♀ 30.9-42.3 mm; tegmina ♂ 18.8-23.7, ♀ 20.5-31.8 mm. —The Crimea, southeastern European part of the U.S.S.R., Transcaucasia, Kazakhstan, Middle Asia, southeastern part of western Europe, western Asia. Injures young crops of cereal grasses, sesame, and sunflower in Middle Asia (Figure 967). . . . *1. R. turcomana (F.-W.) — Turkmenian 'young mare' grasshopper [*Kobylka turkmenskaya*].

Fischer-Waldheim, 1833, Bull. Soc. Nat. Moscou, VI:384 (*Oedipoda*), Uvarov, 1927a:96, 97, Figure 40; Tarbinskii, 1931b:165, Figure 1, Tarbinskii, 1940:29, 191, 223, Figure 150, Tarbinskii, 1948:121, Figure 147. —truchmana Fischer-Waldheim, 1846:313 (*Oedipoda*), Jakobson, 1905:185, 243 (*Arcyptera*). —formosus Becker, 1864, Bull. Soc. Nat. Moscou, XXXVII, 1:488 (*Stenobothrus*). —turcomanum Brunner-Wattenwyl, 1882:149, 140 (*Stethophyma*).

Biology: Bel-Bienko, 1932b:23, Ivanov, 1934b:124-149, Predtechenski, Zhdanov, and Popova, 1935:83, Zimin, 1938:34, 64, Plate 19, Mikhchenko, 1949b:160.

- 436 3(2). Foveolae in both sexes strongly impressed, smooth, their margins sharp. ♀ ovipositor with smooth pads on the ventral valves. Length of body of ♂ 19.8-25.0, ♀ 24.6-39.9 mm, tegmina ♂ 15.3-20.0, ♀ 19.1-27.4 mm. —Western and southern Kazakhstan, Middle Asia, Transcaucasia, Iran, northern Afghanistan, western Pakistan *2. R. foveolata Tarb.

Tarbinskii, 1931b:165, 167, Figure 2.

- 4(1) Wings in both sexes without a dark apical spot. Hind femur in the ♂ with a light distal end, inner aspect in the ♀ without a preapical dark spot. Hind tibiae, in both sexes nearly monochromatically dirty blue. Length of body ♂ 16.0-18.5, ♀ 24.0-26.5, tegmina ♂ 12-13, ♀ 16-20 mm. —Southeastern European part of the U.S.S.R., north-western and eastern Kazakhstan, southern Middle Asia, Transcaucasia, Asia Minor, northern Iran. . . . *3. R. bolivari (Kuthy) —Bolivar's 'young mare' grasshopper [*Kobylka Bolivara*].

Kuthy, 1907, Ann. Mus. Nat. Hung., VI:431 (*Stethophyma*), Uvarov, 1927a:96, 97, Tarbinskii, 1931b:165, 168, Tarbinskii, 1940:29, 191, 192; Tarbinskii, 1948:121. —elegans Uvarov, 1910, Trudy Puskogo entomologicheskogo obshchestva, XXXIX:370 (*Arcyptera*).

132. Genus Stenohippus Uv.

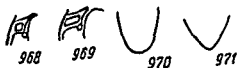
Uvarov, 1926, Trans. Ent. Soc. Lond., (1925) Parts III-IV:423.

Type of genus: Stenohippus xanthus (Karny), the Sudan.

Head short. Eyes situated in the middle part of the head. Vertex short and narrow, its width between the eyes 1.25-1.5 times more than the width of the frontal ridge between the antennae, its lateral margins short, never



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Figures 968-971

Original

968—Doclostaurus (s. str.) genei
(Ocsk), ♂, left foveola; 969—D.
(s. str.) brevicollis (Ev.), ♂, left
foveola; 970—D. (s. str.) maroc-
canus (Thunb.), ♂, tip of subgenital plate
from below; 971—D. (s. str.) brevicol-
lis (Ev.), ♂, tip of subgenital plate from
below.

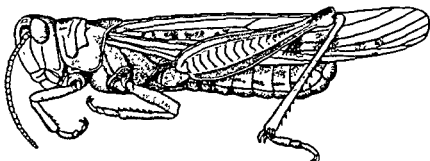


Figure 972

972—Doclostaurus (s. str.) maroccanus (Thunb.) ph.
gregaria, ♂ (After Bel-Bienko).

extending onto the occiput. Foveolae only partly seen when examined from above. Occiput smooth, without a median carina. Antennae filiform. Pronotum with sharp lateral carinae for their whole extent and usually intersected by only one posterior transverse groove; frequently the lateral carinae are intersected by still another anterior transverse groove, but never by all three; posterior margin rounded, projecting. Tegmina well developed, median field with a spurious median vein, cubital field rather wide, its greatest width equal to or distinctly more than the narrowest part of the apical part of the median field. Wings well developed. Hind femora with rounded dorsal genicular lobes. Hind tibia with a long ventral spur on the inner aspect, its length twice more than that of the dorsal inner spur. Metasternum posteriorly with the lobes contiguous. Tympanal organ on the first abdominal tergite well developed.

Around 11 species are known, being inhabitants of the Canary Islands, Africa, and southwestern Asia (east to India).

- 1 (1). Antennae in both sexes slender, the length of a single median segment of the antenna 1.5 times more than its greatest width. Pronotum in both sexes with weakly concave lateral carinae in the middle part, in the posterior part they are distinctly divergent, the posterior transverse groove runs along distinctly before the middle of the pronotum. Wings in the ♂ slightly darkened at the apex. Hind tibiae in both sexes light. Mesosternum in both sexes with rather narrow interspace between the lobes, its narrowest part is equal to its length. Length of body ♂ 11.8-17.0, ♀ 15.6-20.8 mm, tegmina ♂ 11.5-11.9, ♀ 14.5-17.6 mm. — Arabia; Iran Kuhistan, Kerman, India 1 S. mundus (Walk.)

Walker, 1871, Cat. Derm. Salt. Brit. Mus., V, Suppl. 79 (Stenobothrus), Kirby, 1914 117, 119 (Dociostaurus).

133. Genus Aulacobothrus I. Bol.

I. Bolivar, 1902, Ann. Soc. Ent. France, LXX 597, Kirby, 1914 97, 123, — Stirapleura L. Bruner, 1900, Second Rep. Merck. Locust Invest. Comm. 122 (not Scudder), — Phorenula I. Bolivar, 1909, Bol. R. Soc. Esp. Hist. Nat. 294 — Stenobothrus Kirby, 1914 97, 120 (partly), — Stenoderus Kirby, 1914 97, 127 (partly), — Scyllinops Rehn, 1927, Trans. Amer. Ent. Soc., LIII 228.

Type of genus Aulacobothrus strictus I. Bol., India.

Head short. Eyes situated in the middle part of the head. Vertex short, with long lateral margins which—in the form of a carina—extend far over onto the occiput. Foveolae distinct, readily visible from above. Occiput with a distinct median carina also extending onto the posterior part of the vertex. Antennae filiform. Pronotum with rather weak and usually concave lateral carinae, posterior margin distinctly projecting. Tegmina well developed, rarely weakly abbreviated, median field with a spurious median vein, cubital field moderately widened, its greatest width equal to or distinctly less than the narrowest part of the apical part of the median field. Wings usually well developed. Hind femora with rounded dorsal genicular lobes. Hind tibia with a long ventral spur on the inner aspect, its length twice more than the dorsal spur on the same aspect. Metasternum posteriorly with contiguous lobes. Tympanal organ on the first abdominal tergite well developed.

A large number of species are known which are widely distributed in the savannas of Africa, in India and China, and in the pampas of South America.

- 1 (2). Hind femur in both sexes with 3 black bands on the dorsal aspect and with a black distal end. Pronotum in both sexes anteriorly with nearly parallel lateral carinae which are weakly concave in the middle part; posterior part nearly smooth; posterior margin obtuse-angular. Hind tibiae in both sexes reddish in the apical part. Length of body ♂ 15, ♀ 20-22 mm; tegmina ♂ 11.5-12.0, ♀ 15 mm. — West Pakistan, India (north to Kashmir), southern China. (According to Bolivar, Kirby, and Walker) 1. Au. luteipes (Walk.)

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Walker, 1871, Cat. Derm. Salt. Brit. Mus., V, Suppl. 82 (Stenobothrus); Kirby, 1914:121 (Stenobothrus). — taenistatus L. Bolivar, 1902, Ann. Soc. Ent. France, LXX:600, Kirby, 1914:125. — bicolor Kirby, 1914:127, Figure 93 (Stauroderus) (not Charpentier).

- 2 (1). Hind femur in both sexes without dark bands and spots on the dorsal aspect; distal end light. Antennae in the ♂ longer than the head and pronotum, but in the ♀ equal to them. Wings in both sexes darkened in the apical part. Hind femur in both sexes with red inner aspect. Length of body ♂ 15.6-16.0, ♀ 19-20 mm; tegmina ♂ 14, ♀ 17.0-17.2 mm. — China: Szechwan (according to Sjöstedt) 2. Au. even-hedini Sjöst.

Sjöstedt, 1933, Arkiv Zool., 25A, No. 3:23, tab. 11, Figures 5-6.

134. Genus Doclostaurus Fieb.

Fieber, 1853 (June), Lotos, III:118, Kirby, 1914 97, 116 (partim); Uvarov, 1921:397 (partim); Chopard, 1922:131, 135; Uvarov, 1927a:58, 87 (partim); Berezhkov, 1937:28, 44 (partim); Tarbinskii, 1940:27, 164, 182 (partim); Tarbinskii, 1948:114, 120 (partim). — Stauronotus Fischer, 1853 (Nov.), Orn. Eur.:297, 351; Brunner-Wattenwyl, 1882:84, 135 (partim); Jakobsen, 1905:166, 184, 239 (partim); Obenberger, 1926 61, 72.

Type of genus: Doclostaurus (s. str.) maroccanus (Thunb.).

Head short. Eyes situated in the middle part of the head. Vertex short. Foveolae distinct, tetragonal, readily visible from above, wide and short; length of a pit equal to or 1.25-1.5 times more than its greatest width. Frontal ridge wide and flat, hardly impressed near the median ocellus; its margins obliterated. Occiput smooth. Antennae filiform. Pronotum with 3 well developed transverse grooves which always extend over from the disk of the pronotum onto the lateral lobes; lateral carinae anteriorly completely effaced or hardly noticeable; in the posterior part distinctly convergent toward the median carina; posterior margin projecting. Tegmina usually well developed, sometimes abbreviated; precostal field in the ♂ with a distinct spurious vein; the median field without a spurious median vein or with it; cubital field weakly widened, its greatest width equal to or distinctly less than the narrowest part of the apical part of the median field. Tarsi with a small empodium between the claws, hardly reaching the middle of the claws. Hind femora with rounded dorsal genicular lobes. Hind tibia with a short ventral spur on the inner aspect; its length slightly more than the dorsal spur on the same aspect. Posterior

tarsi with long first segment, equal to the other 2 segments Metasternum in both sexes with distinctly separated lobes. Tympanal organ on the first abdominal tergite well developed.

Around 14 species in central and southern Europe, and in western Asia.

Key to Subgenera of Doclostaurus Fieb

- 439 1 (2). Pronotum with narrow light lateral bands on the posterior part of the X-shaped marking, if this marking is developed, the greatest width of this separate band is equal to or hardly more than the greatest width of the light separate band on the anterior part of the X-shaped marking situated before the posterior transverse groove of the pronotum. Hind femur narrow, well-proportioned, length of femur 3.7-4.2 times more than its greatest width, the ventral lateral carinae of the outer aspect usually without black dots [or punctures] 1 Doclostaurus Fieb
- 2 (1). Pronotum with wide light lateral bands on the posterior part of the X-shaped marking, if this marking is developed, the greatest width of this separate band is 2-4 times more than the greatest width of the separate light band on the anterior part of the X-shaped marking situated before the posterior transverse groove of the pronotum. Hind femur wide and short, length of femur only 3.3-3.6 times more than its greatest width, ventral lateral carina of the outer aspect usually with several black dots [or punctures] 2 Stauronotulus Tarb

1. Subgenus Doclostaurus Fieb.

Fieber, 1853, (June), Lotos, III 118 Tarbinski, 1940 27, 182 Tarbinski, 1948:120

Type of subgenus Doclostaurus (s. str.) maroccanus (Thumb)

Pronotum usually with a distinct X-shaped light marking, the light lateral bands of the marking in the posterior part narrow, the greatest width of this band equal to or hardly more than the greatest width of the light band situated between the median and posterior transverse grooves. Hind femur narrow, long and slender, the length of a femur 3.7-4.2 times more than its greatest width, ventral lateral carina on the outer aspect usually without black dots [or punctures]

Around 10 species distributed on the Canary Islands and Madeira, in North Africa, in central and southern Europe, and in western Asia, are known.

- 1 (8). Pronotum with short anterior part, length of anterior part of pronotum equal to or even less than the length of the posterior part of the pronotum, lateral carinae in the posterior part distinctly divergent, posterior margin distinctly arcuately or angularly projecting. Tegmina and wings always completely developed.
- 2 (3). Foveolae short and wide, the length of a pit nearly equal to its greatest width (Figure 968). Length of body ♂ 10.5-13.0, ♀ 15-19 mm.

tegmina σ 7.5-12.0, ϕ 10.0-14.5. -North Africa, Europe, Hither Asia
 1. D. (s. str.) genei (Ocks).

Ocskay, 1832, Acta Ac. Leop. Carol., XVI, (2):961 (Gryllus). Brunner-Wattenwyl, 1882:136, 137 (Stauronotus). Jakobson, 1905:184, 242 (Stauronotus) (partim). Uvarov, 1921:400, Chopard, 1922:131, 156, Figure 393, Uvarov, 1925c:61, 63, Figure 67. -pygmaeum Fischer, 1853, Orth. Eur.:353, 353, tab. XVII, Figures 11c, d (Acridium).

- 440 3 (2). Foveolae longer; the length of a pit nearly 1.5 times more than its greatest width (Figure 969).
 4 (5). Eyes in both sexes small; vertical diameter of the eye in the σ hardly more than the subocular groove, but in the ϕ equal to it. Front femur in the σ distinctly thickened. Tegmina and wings extending far beyond the distal end of the hind femur. σ subgenital plate wide, the apex bluntly (Figure 970) truncate. Hind tibia usually red, in f. xanthocnema Tarb. it is yellow. Length of body 20-28, ϕ 28-38mm; tegmina σ 17.5-27.0, ϕ 24-26 mm. -Western and southern parts of the European part of the U.S.S.R., the Caucasus, southern Kazakhstan, Middle Asia; Canary Islands, Madeira, North Africa, southern regions of western Europe, western Asia. One of the most serious pests of many cultivated plants, chiefly wheat, barley, cotton, and other agricultural crops; sometimes also injures fruit trees and grape vines. D. (s. str.) maroccanus (Thunb.) -Moroccan locust [Sarancha marokkskaya].

Tunberg, 1815, Mém. Acad. Sci. St.-Pétersb., VI:244 (Gryllus). Brunner-Wattenwyl, 1882:136 (Stauronotus). Jakobson, 1905:184, 240, Plate X (Stauronotus). Uvarov, 1921:399, Chopard, 1922:131, 155, Figures 8, 108, 346, 348, Obenberger, 1926:72 (Stauronotus). Uvarov, 1925a:88, 90, Figures 90, 91, 94, Uvarov, 1927b:223, Figures 27, 28, 47, 81-83, Tarbinskii, 1940:27, 182, 223, Figures 14, 106, 113, 114, 155-157, 175, Tarbinskii, 1948:120, Figures 126, 130, 153. -cruciatus Charpentier, 1825, Hor. Ent.:137 (Gryllus). -vastator Fischer-Waldheim, 1833, Bull. Soc. Nat. Moscou, VI:384 (Oedipoda). -oceanica Walker, 1870, Cat. Derm. Salt. Brit. Mus., IV:779 (Epacromia). -tar-tarus Shcheikanovisev, 1909, Rabochaya Laboratoriya Zoologicheskogo Kabineta Vnshavskogo Universiteta:34 (Stauronotus) (partim). -maroccanus degeneratus Baranov, 1925, Pol'opr. ogl. i kontr.' n. Topchlder, Fit.-ent. odesk., 3:14, 21, Figure 8. -maroccanus f. xanthocnema Tarbinskii, 1932, Izvestiya Leningradskogo Instituta Bor'by s Vreditelyami i Boleznyami Sel'skogo i Lesnogo Khozyaystva, 11:201. -maroccanus ph. solitaria Tarbinskii, 1932, ibidem, III:303-312, Figures 1, 3, Tarbinskii, 1940:184, Figure 157, Tarbinskii, 1948:120. -maroccanus ph. gregaria Tarbinskii, 1932, Izvestiya Leningradskogo Instituta Bor'by s Vreditelyami i Boleznyami Sel'skogo i Lesnogo Khozyaystva, III:303-312, Figures 2, 3; Tarbinskii, 1940:183, Figures 155, 156, Tarbinskii, 1948:120.

Biology: Svidchenko, 1924:1-63, Dovnar-Zapol'skii, 1924:5, 7, Dovnar-Zapol'skii, 1926:164, Bel-Bienko, 1932b:20, 226, 387; Zhdanov, 1934:3-51; Predtechenski, Zhdanov and Popova, 1935:43-76, Bel-Bienko, 1937:109-110, Figure 9; Zimlin, 1938:34, 60, Plate VII, Figure 39, Moshchenko, 1949b:158.

- a (b). Hind femurs dorsally with weak sometimes obsolescent dark specks; interspace between the lateral carinae on the outer aspect of the femur either without a black marking or with very small dark specks near the dorsal carina which do not make distinct belts. (Figure 972). The index tegmen/hind femur is 1.50-1.90 *2a. D. (s. str.) maroccanus Thunb. ph. gregaria -Gregarious phase.

Tarbinskii, 1932, Izvestiya Leningradskogo Instituta Bor'by s Vreditelyami i Boleznyami Sel'skogo i Lesnogo Khozyaystva, III:303-312, Figures 2, 3, Tarbinskii, 1940:183, Figures 155, 156, Tarbinskii, 1948:120.

- b (a). Hind femur dorsally with distinct dark spots, extending onto the inner aspect and is making distinct oblique dark belts. The index tegmen/hind femur is 1.30-1.55 *2b. D. (s. str.) maroccanus Thunb. ph. solitaris—Solitary phase.

Tarbinskii, 1932, *Izvestiya Leningradskogo Instituta Bor'by s Vreditelyami i Boleznyami Sel'skogo Lesnogo Khozyaystva*, III 303-312, Figures 1, 3 Tarbinskii, 1940 184, Figure 157, Tarbinskii, 1948 120 — maroccanus degeneratus Baranov, 1925, Pol'opr. ogl. i kontr. st. Topchider, Fit. ent. otdsek, 3 14, 21, Figure 8

- 5 (4). Eyes in both sexes large, vertical diameter of the eye in the ♂ 1.75-2.0, but in the ♀ 1.5-1.75 times more than the subocular groove. Front femur in the ♂ slender, not thickened. Tegmina and wings only reaching or hardly exceeding the distal end of the hind femur. ♂ subgenital plate conical with weakly blunted apex (Figure 971).
- 6 (7). Vertex wide, its width between the eyes nearly 1.5-2 times more than the width of the frontal ridge between the antennae. Hind tibiae red. Length of body ♂ 12-18, ♀ 16-25 mm, tegmina 9-14, 8♂, ♀ 13.0-17.5 mm—Southern and central regions of the European part of the U.S.S.R., the Caucasus, southwestern Siberia, northern and eastern Kazakhstan, Kirghizia, Pamir, southeastern part of western Europe, Asia Minor. A less important pest of cereal grasses, and also hay fields *3. D. (s. str.) brevicollis (Ev.)—Small cross-bearing grasshopper [Krestovichka malaya].

Eversmann, 1848, *Addit. quaedam levia ad Fischeri de Waldheim Orth. Ross. 11 tab. A*, Figure 4 (Oedipoda) Brunner Wattenwyl 1882 136 137 Figure 30 (Stauronotus), Jakobson 1905 184 241 Plate V (Stauronotus) Obenberger 1926 72 (Stauronotus) Berezikov 1937 44, 63 82, Figure 58, Tarbinskii, 1940 27, 182 185, 222, Tarbinskii 1948 120 — annulipes Turk 1862, Wien Ent. Mon., VI 81 (Stauronotus) — crucigerus Uvarov, 1921 399, 402 (partly) — crucigerus brevicollis Uvarov, 1921 399 403, Uvarov, 1927a 88, 91 Uvarov, 1927b 278, Figures 95 96 — brevicollis ab. lineatus, synchroae et pigrinus Gortler, 1946, Casop. Ceskosl. Spol. Ent., XLIII, 1-4 53, 54 Biology: Dvornar-Zapol'skii, 1924 5, Bei-Bienko, 1928a 191, Figure 8 Bei-Bienko 1928b 77-82, Bei-Bienko, 1932b 20, Predtechenskii, Zhdanov, and Popova, 1935 82 Zimin 1938 33 58 Plate VI, Figure 30 Mishchenko 1949b 158

- 7 (6). Vertex narrow, its width between the eyes equal to or hardly more than the width of the frontal ridge between the antennae. Hind tibiae dirty-blue. Length of body ♂ 12.0-17.5, ♀ 20-26 mm, tegmina ♂ 8-15, ♀ 12.5-20.0 mm.—Southeastern area of the European part of the U.S.S.R., Caucasus, Kazakhstan, Middle Asia, Iraq, northern Iran, northern Afghanistan. Slightly injures young crops of cotton in Middle Asia *4. D. (s. str.) tartarus Uv.—Desert cross-bearing grasshopper [Krestovichka pustynnaya].

Tarbinskii 1940 28, 182, 186, 223 Tarbinskii, 1948 120 — genei Jakobson, 1905 184 242 (Stauronotus) (partim). — crucigerus tartarus Uvarov, 1921 339, 403 (not Shchelkanovtsev), Uvarov, 1927a 88, 91, Figures 88, 89

Biology: Bei-Bienko 1932b 21, Zimin, 1938 33, 59 Plate VIII, Figure 43 Mishchenko 1949b 159

- 442 8 (1). Pronotum with long anterior part; length of the anterior part is 1.5 times more than the length of the posterior part; lateral carinae in the posterior part weakly divergent; posterior margin nearly straight, weakly rounded. Tegmina and wings usually greatly abbreviated, very rarely well developed.
- 9 (10). Foveolae weakly impressed. Eyes in the ♀ small; vertical diameter of the eye equal to the subocular groove. Hind tibiae red. Larger. Length of body ♂ 21.3-23.0, ♀ 32.0-35.5 mm; tegmina ♂ 7.9-8.0, ♀ 12.2-13.0 mm. -Northwestern Iran 5. D. (s. str.) kurdus Uv.

Uvarov, 1921 401, 406.

- 10 (9). Foveolae strongly impressed. Eyes in the ♀ large, vertical diameter of the eye 1.5 times more than the subocular groove. Hind tibiae dirty blue. Smaller. Length of body ♂ 11.5-14.0, ♀ 19.8-21.0 mm; tegmina ♂ 5-8, ♀ 7.8-10.0 mm; f. macroptera ♀ 15-16 mm. -Turkmenia, Uzbekistan, Tadzhikistan; northern Iran, northern Afghanistan. Slightly injures agricultural crops in Uzbekistan *6. D. (s. str.) plotnikovi Uv. - Plotnikov's cross-bearing grasshopper [Krestovichka Plotnikova].

Uvarov, 1921-400, 405, Uvarov, 1927a 90, 92, Figures 93, 96. -plotnikovi f. macroptera
Uvarov, 1926, Eos, II 343

Biology. Bel-Bienko, 1932b 21, Predtechenski, Zhdanov, and Popova, 1935-130, Mishchenko, 1949b-158.

2. Subgenus Stauronotulus Tarb.

Tarbinskii, 1940 28, 182, Tarbinskii, 1948 121.

Type of subgenus: Doclostaurus (Stauronotulus) hauensteini (I. Bol.).

Pronotum with wide light lateral bands in the posterior part of the X-shaped marking; the greatest width of this band 2-4 times more than the greatest width of the light band situated between the middle and posterior transverse grooves. Hind tibiae wide and short; length of femur 3.3-3.6 times more than its greatest width; ventral lateral carina of the outer aspect usually with several black dots [or punctures].

Four species are known, being distributed in the southeastern part of the European part of the U.S.S.R., in the Caucasus, in southern West Siberia, in Kazakhstan, in Middle and Hither Asia.

- 1 (2). Pronotum anteriorly with weak but distinct lateral carinae. ♂ abdomen with 2 large lobes on the posterior margin of the last tergite which nearly reach the middle of the supraanal plate (Figure 973). *1. D. (S.) hauensteini (I. Bol.)
- a (b). Vertex narrower and longer; lateral margins reaching the middle of the eyes and making a sharp angle at the anterior margin of the eyes. Length of body ♂ 16.5-19.0, ♀ 22.6-29.0 mm; tegmina ♂ 8-11, ♀ 12.3-19.5 mm. -Transcaucasia; Asia Minor, Syria, Palestine, northern Iran *1a. D. (S.) hauensteini hauensteini (I. Bol.)

- b (a). Vertex wider and shorter, its lateral margins hardly extending beyond the anterior margin of the eyes and making with it obtusely rounded angles. Length of body ♂ 18-22, ♀ 18.7-28.0 mm, tegmina ♂ 9.3-9.8, ♀ 9.0-9.6 mm. -Northwestern Iran. Elburz.
 1b. D. (S.) hauensteini elbursianus Uv.

Uvarov, 1933, Trudy Zoologicheskogo instituta AN SSSR (1932) 1 194

- 2 (1). Pronotum anteriorly without lateral carinae. ♂ abdomen on the posterior margin of the last tergite with small lobes which do not reach the middle of the supraanal plate (Figures 974, 975).
- 3 (4). Vertex in both sexes wide, its width between the eyes 2-3 times more than the width of the frontal ridge between the antennae (Figure 976). Abdomen in the ♂ with wide lobes on the posterior margin of the last tergite (Figure 974) *2 D. (S.) kraussi (Ingen.) -Atbasar Region grasshopper [Atbasarka].
- a (d). Hind femur in the ♂ with a light ventral genicular lobe on the outer and sometimes also on the inner aspect, only the base of the lobe is slightly darkened, but it is sometimes almost light, in ♀ the ventral genicular lobe of the inner aspect of the femur is almost entirely light. Pronotum in the ♀ with a wide posterior part; the length of the posterior part is significantly less than its narrowest part between the lateral carinae
- b (c). Tegmina in the ♀ far from reaching distal ends of hind femora. Hind tibiae in the ♂ reddish. Length of body ♂ 16-20, ♀ 23-26 mm, tegmina ♂ 11-15, ♀ 13-16 mm. -Southeast European part of the U.S.S.R., Cascaucasia, southern West Siberia, northwestern and eastern Kazakhstan. Injures grain, sometimes doing great harm *2a. D. (S.) kraussi kraussi (Ingen.)

Tarbinskii, 1948 121 -kraussi Ingenitisku, 1897 Trudy Russkogo entomologicheskogo obshchestva, XXXI 63 71, Plate VII, Figures 1-5 (Stauronotus) Jakobson 1905 184, 241 (Stauronotus) Uvarov 1921 401, 406 (partim), Uvarov, 1927a 88 91, Figures 92, 95 (partim), Uvarov 1927b 279, Figure 97 (partly) Berezhkov, 1937 44, 63, 83, Figure 42 Tarbinskii, 1940 28, 222, Figures 116, 173
 Biology: Dovnar Zapol'skii, 1924 5; Bei-Bienko 1928a 191 Bei-Bienko, 1932b 20 Predtechenskii Zhdanov, and Popova, 1935 80 Bei-Bienko 1937:107, Zimin, 1938 33 61, Plate IV, Figure 18 Mishchenko, 1949b 159

- c (b). Tegmina in the ♀ extending beyond distal ends of hind femora Hind tibiae in the ♂ yellow or whitish. Length of the body in the ♂ 14.4-19.5, ♀ 19.3-25.1 mm. tegmina ♂ 8.5-15.8, ♀ 13.4-18.6 mm. -Kazakhstan Kara-tasa and river Chatyrly in Temir District, the river Temir, Ak-tam and Koilibai in Malye Barsuki sands, Barsa-kul'mi, Kazalinsk, Kzyl-orda, station Ber-kazan', station Uch-tyube, Karatal, Akyr-tyube in the sands of Muyun-kum, northern Kirghizia Frunze. (Type from Koilibai)
 *2b. D. (S.) kraussi claripes Mistsh. subsp. nov.

- 444 d(a). Hind femur in the ♂ with a black distal end; in the ♀ nearly all the ventral genicular lobe on the inner aspect of the hind femur black; but if sometimes it is light then the length of the posterior part of the pronotum is nearly equal to its narrowest part between the lateral carinae. Hind tibia in the ♂ with a black base.
- e(f). Frontal ridge in the ♀ strongly narrowed near the fastigium, its greatest width twice more than its narrowest part. Hind tibiae in the ♂ orange. Length of body ♂ 20.5-23.0, ♀ 28.3-31.3 mm; tegmina ♂ 12.3-16.6, ♀ 15-16.2 mm. — Southern Tadzhikistan; northern Afghanistan. Slightly injures "bogar" seedlings in the foot-hills of the Kara-tau *2c. D. (S.) kraussi aurantipes B. -Blenko.

Bel-Bienko, 1933, Bol. Soc. Esp. Hist. Nat., XXXIII 336, 337.

Biology: Mishchenko, 1949b:159 [as D. (S.) nigrogeniculatus aurantipes B. -Blenko].

- f(e). Frontal ridge in the ♀ near the fastigium weakly narrowed; its greatest width 1.5 times more than its narrowest part. Hind tibiae in the ♂ yellow or red.
- g(h). ♀ tegmina hardly extending beyond the middle of the hind femur. Hind femur in both sexes usually with a reddish ventral part on the inner aspect. Hind tibiae in the ♂ red. Length of body ♂ 18.4-19.5, ♀ 23.0-28.4 mm; tegmina ♂ 9.5-12.4, ♀ 11.2-16.1 mm. — Turkestan mts.; Guralash-sai; north slope of the Hissar range; Kzyl-tam and landmark Khan-takhta. (Type from Kzyl-tam) *2d. D. (S.) kraussi ornatus Mistsh. subsp. n.
- h(g). ♀ tegmina extending far beyond the middle of the hind femora sometimes reaching or nearly reaching distal ends. Hind femur in both sexes with a yellow ventral part on the inner aspect. Hind tibia in the ♂ yellow. Length of body ♂ 18.5-22.0, ♀ 29.0-31.5 mm; tegmina ♂ 12.5-17.5, ♀ 17.5-20.5 mm. — Southern Kazakhstan, nearly all Middle Asia; Iran, northern Afghanistan, western Pakistan. Considerably injures seedlings of wheat, barley, castor plant, alfalfa, and cotton in southern Kazakhstan and Middle Asia *2e. E. (S.) kraussi nigrogeniculatus Tarb. — Noxious cross-bearing grasshopper [Krestovichka vrednaya].

Tarbinskii, 1928, Izvestiya Kursov prikladnoi zoologii i fitopatologii, 4, 58. — kraussi Uvarov, 1921-401, 406 (partim); Uvarov, 1927a-88, 91 (partim), Uvarov, 1927b:279 (partim);

Biology: Bel-Bienko, 1932b-20, Predtechenskiĭ, Zhdanov, and Popova, 1935 80 Zimn. 1938:33, 61, Plate VII, Figure 38, Mishchenko, 1949b:159 (as D. (S.) nigrogeniculatus nigrogeniculatus Tarb.).

- 4 (3). Vertex in both sexes narrow; its width between the eyes equal to or 1.25 times more than the width of the frontal ridge between the antennae (Figure 977). Abdomen in the ♂ with narrow, very small lobes on the posterior margin of the last tergite (Figure 975). Length of body in the ♂ 10.2-12.2, ♀ 14.5-19.4 mm; tegmina ♂ 5.5-6.5, ♀ 5.9-9.3 mm. — Northern Iran. 3. D. (S.) diamesus B. -Blenko.

Bel-Bienko, 1948, Proc. R. Ent. Soc. Lond., (8), XVII 68, Figure 3

135 Genus Notostaurus B -Bienko

Bel Bienko 1933 Bol Soc Esp Hist. Nat., LXXIII, 337, 338 —Stauronotus Brunner Wattenwyl 1882 84 135 (partim) Jakobson 1905 166, 184 239 (partim) —Doclostaurus Uvarov 1921 397 (partim) Uvarov, 1927a 58, 87 (partim) Berezhkov, 1937 28 44 (partim) —Doclostaurus subgen Notostaurus Tarbinskil, 1940 28, 182 Tarbinskil, 1948 121

Type of genus: Notostaurus anaticus (Kr.).

145 Head short. Eyes situated in the middle part of the head Vertex short. Foveolae distinct, tetragonal, readily visible from above, wide and short, length of a pit 1.25-1.5 times more than its greatest width. Frontal ridge wide and flat, hardly depressed near the median ocellus, its margins obsolete [or effaced]. Occiput rugose, with a sharp median carina Pronotum with distinct light X-shaped marking, all 3 transverse grooves well developed, always extending from the disk of the pronotum onto the lateral lobes, lateral carinae in the anterior and posterior parts usually distinct, sharply converging toward the median carina, absent between the transverse grooves, posterior margin projecting. Tegmina and wings either well developed or shortened, the precostal field of the σ tegmina with a distinct spurious vein, median field either with or without a spurious median vein. The cubital field weakly widened, its greatest width equal to or distinctly less than the narrowest part of the apical part of the median field. Tarsi with a small empodium between the claws, hardly reaching the middle of the claws. Hind legs with sparse short hairs. Hind femora with rounded dorsal genicular lobes. Hind tibiae with a small ventral spur on the inner aspect, slightly larger than the dorsal spur of the same aspect. Hind tarsus with a long first segment, nearly equal to the other two segments Metathorax in both sexes with distinctly separated lobes Tympanal organ on the first abdominal tergite well developed.

Four species, distributed in the southeastern part of the European part of the U.S.S.R., in the Caucasus, Western Siberia, Kazakhstan, and in Middle and Hither Asia, are known.

- 1 (4). Vertex with lateral margins making sharp angles at the anterior margin of the eye (Figure 978) Pronotum with a posterior transverse groove extending along the middle of the pronotum, length of the anterior part of the pronotum equal to its posterior part sometimes in the σ the posterior transverse groove of the pronotum extends beyond the middle and the length of the anterior part of the pronotum is distinctly greater than its posterior part, then the lateral carinae are obsolete in the anterior part of the pronotum and the length of its posterior part is considerably less than its narrowest width between the lateral carinae
- 2 (3). Vertex in the σ with obtuse-angular fastigium Foveolae short and wide, not narrowed toward the anterior margin length of a pit 1.25 times more than its greatest width Pronotum in the posterior part with narrow light bands on the X-shaped marking, if this is developed, the greatest width of this separate band is usually equal to the greatest width of the separate light band situated in the anterior part of the pronotum. Hind femora in the σ with a black distal end. Hind tibiae in the σ with a black base Length of body σ

18-21, ♀ 23-31 mm; tegmina ♂ 12.5-17.5, ♀ 16-26 mm. — East Rostov Region, eastern Ciscaucasia, Dagestan, Transcaucasia; Asia Minor, Syria, Palestine, Iran *1. N. anaticus (Kr.). — Anatolian cross-bearing grasshopper [Krestovichka anatoliiskaya].

Krauss, 1896, Zool. Jahrb., Abt. Syst., IX, 560, Plate 8, Figure 1 (Stauronotus). Jakobson, 1905: 183, 241 (Stauronotus). Uvarov, 1921: 400, 404 (Doclostaurus). Uvarov, 1925c: 61, 63 (Doclostaurus). Tarbinskii, 1940: 28, 182, 189 (Doclostaurus subgen. Notostaurus). — anaticus var. caspius — caspius Krauss, 1896, Zool. Jahrb., Abt. Syst., IX, 561, tab. 8, Figures 2, 2A-8 (Stauronotus). Jakobson, 1905: 242 (Stauronotus). Tarbinskii, 1940: 189 (Doclostaurus subgen. Notostaurus). Tarbinskii, 1948: 121 (Doclostaurus subgen. Notostaurus). — tartarus Shchelnikov, 1909, Rabochnaya Laboratoriya Zoologicheskogo Kabineta Vostochnogo universiteta: 34 (Stauronotus) (partly).

- 446 3 (2). Vertex in the ♀ with a right-angled fastigium. Foveolae longer and narrower, distinctly narrowed toward the anterior margin; length of a pit 1.5 times more than its greatest width. Pronotum posteriorly with wide light bands on the X-shaped marking, if this is developed; the greatest width of this separate "groove" [sic!] nearly twice more than the greatest width of the separate light band situated in the anterior part of the pronotum. Hind femur in the ♂ with a light ventral genicular lobe on the outer aspect. Hind tibiae in the ♂ always light at the very base. *2. N. albicornis (Ev.)
- a (f). Mesosternum in both sexes with a narrow interspace between the lobes; its narrowest part considerably less than the narrowest part of the mesosternal lobe (Figure 979).
- b (c). Hind tibiae in both sexes bluish, sometimes with a distinct violet tinge; tibia in the ♂ without a black ring near the base, only with a black spot on the inner aspect.
- c (d). Smaller. Length of body ♂ 11.5-15.0, ♀ 15.0-22.5 mm; tegmina ♂ 6.5-11.0, ♀ 11.5-15.0 mm. — Southeast of European part of the U.S.S.R., Ciscaucasia, Azerbaijan, Georgia, southern part of West Siberia, Kazakhstan, Middle Asia; northern Iran, northwestern Mongolia *2a. N. albicornis albicornis (Ev.). — Skewbald cross-bearing grasshopper [Krestovichka pegaya].

Uvarov, 1927a: 85, 92, Figures 85-87 (Doclostaurus) (partim). — albicornis Evermann, 1848, Atlas, quaedam levia ad Fischeri de Wald. Orth. Rom. 110, Plate A, Figure 3 (Stauronotus). Brunner-Wattenwyl, 1852: 136, 138 (Stauronotus). Jakobson, 1905: 183, 242 (Stauronotus). Uvarov, 1921: 40, 64 (Doclostaurus). Berezikov, 1937: 44, 63, Figure 43 (Doclostaurus). Tarbinskii, 1940: 28, 182, 189, 221 (Doclostaurus subgen. Notostaurus). Tarbinskii, 1948: 121 (Doclostaurus subgen. Notostaurus).

Biology. Zinna, 1933: 34, 41, Plate IV, Figure 21. Dvornik-Zapolskii, 1940: 241, 243.

- d (c). Larger. Length of body ♂ 15.5-22.5, ♀ 22.4-30.6 mm; tegmina in the ♂ 12.0-18.1, ♀ 15.5-24.2 mm. — Southern Turkmenia, Uzbekistan, southern Tadzhikistan, western Kirghizia, southeastern Kazakhstan; northern Iran, northern Afghanistan *2b. N. albicornis turcomenus (Uv.)

Uvarov, 1927a, loc. II 342 (Doclostaurus). Uvarov, 1927a: 97, 92 (Doclostaurus). Biology. Zinna, 1933: 34, 42.

- e (b). Hind tibiae in both sexes reddish; ♂ tibia with black ring at the base. Length of body in the ♂ 13.3-15.7, ♀ 16.4-21.7 mm, tegmina ♂ 6.5-7.2, ♀ 10.5-11.7 mm. —Western part of Hissar Mts., Kzyl-tam, landmark Khan-takhta, Mt. Maidanak, northwestern shores of Lake Iskander-kul'. (Type from Kzyl-tam) *2c. N. albicornis rubripes Mistsh. subsp. nov.

—albicornis albicornis Uvarov, 1927a 88, 92 (Doclostaurus) (partim)

- f (a). Mesosternum of the ♂ with a wide interspace between the lobes, its narrowest part is equal to the narrowest part of the mesosternal lobe (Figure 980). ♀ unknown Length of body ♂ 10.6-12.4, tegmina 6.1-7.3 mm. —North Afghanistan, Kali-bel' village 2d. N. albicornis robustus Mistsh. subsp. nov.

- 447 4 (1). Vertex with arcuately curved lateral margins, not making a sharp angle near the anterior margin of the eyes (Figure 981). Pronotum with a posterior transverse groove extending distinctly beyond the middle of the pronotum; length of the anterior part of the pronotum nearly 1.5 times more than the posterior part, lateral carinae in the anterior part of the pronotum in the ♂ sharp, length of the posterior part of the pronotum in the ♂ equal to its narrowest part between the lateral carinae *3. N. popovi Mir.

- a (b). Hind tibiae in both sexes yellow. Length of body ♂ 17.3-20.5, ♀ 24.0-25.7 mm, tegmina ♂ 8.2-9.7, ♀ 9.5-10.5 mm. —Southern Tadzhikistan environs of the town of Kulyab *3a. N. popovi popovi Mir.

—popovi Miram, 1935, Trudy Tadzhikskoi bary AN SSSR, 5 230, Figures 9 11

- b (a). Hind tibiae in both sexes reddish. Length of body ♂ 15.4, ♀ 23.6-25.1 mm, tegmina ♂ 6.7, ♀ 8.7-8.9 mm. —Southern Tadzhikistan environs of Stalinabad *3b. N. popovi comtulus Mistshenko subsp. n.

136 Genus Mizonocara Uv

Uvarov, 1912, Trudy Russkogo entomologicheskogo obshchestva, XI 3 18 Uvarov 1927a.58, 93
Mishchenko 1947 63

Type of genus Mizonocara deserti Uv

Head short. Eyes situated in the middle part of the head. Vertex short. Foveolae indistinct, triangular, or trapezoidal, readily visible from above, wide and short, the length of a pit nearly equal to its greatest width. Frontal ridge wide and flat, hardly impressed near the median ocellus, its margins effaced. Occiput rugose, with a sharp median carina. Pronotum without the light X-shaped marking, all 3 transverse grooves well developed always extending from the disk of the pronotum onto the lateral lobes, lateral carinae in the anterior and posterior parts distinct, straight, nearly parallel to the median carinae, absent between the transverse grooves, posterior margin projecting. Tegmina and wings usually abbreviated, sometimes well developed, precostal field of the ♂ tegmina without the spurious vein, median field of tegmina in both sexes without a

spurious median vein; cubital field of tegmina in both sexes weakly widened, its greatest width equal to or distinctly less than the narrowest part of the apical part of the median field. Tarsus with a small empodium between the claws, which hardly reaches the middle of the claws. Hind legs with long dense hairs. Hind femora with rounded dorsal genicular lobes. Hind tibia with small ventral spur on the inner aspect, which is slightly larger than the dorsal spur of the same side. Hind tarsi with large first segment, equal to the other two segments. Metasternum in both sexes with distinctly separated lobes. Tympanal organ on the first abdominal tergite well developed.

Six species are known, being distributed in the mountains of south Middle Asia, northern Iran, and northern Afghanistan.

- 1 (2). Wings (hind!) well developed. Eyes large; the greatest diameter of the eye 1.5 times more than the least diameter. Vertex narrow; its width between the eyes nearly equal to the width of the frontal ridge between the antennae. Foveolae triangular. Length of body ♂ 11.3, ♀ 14.5-15.6 mm; tegmina ♂ 7, ♀ 7.6-8.4 mm. — Tadzhikistan: southern spurs of the Baba-tag range *1. M. uvarovi B.-Bienko

Bel-Bienko, 1933, Bol. Soc. Esp. Hist. Nat., XXXIII, 339, Mishchenko, 1947, 63, 64, 69.

- 448 2 (1). Wings (hind!) strongly abbreviated, small, embryonic.
 3 (8). Foveolae in the ♀ triangular (Figure 982) sometimes trapezoidal, then the greatest diameter of the eye is twice more than the subocular groove. ♂ tegmina with 1-3 dark spots in the median field.
 4 (5). Vertex in the ♂ narrow; its width between the eyes equal to the width of the frontal ridge between the antennae (Figure 983). Foveolae in the ♂ trapezoidal, ♀ unknown. Length of body ♂ 22.2, tegmina 5.9 mm. — North Afghanistan . . . 2. M. notata Mishsh.

Mishchenko, 1947-64, 65, 69, 70.

- 5 (4). ♂ vertex wide; its width between the eyes 1.5 times more than the width of the frontal ridge between the antennae (Figure 984). Tegmina in the ♀ with a narrow costal field; its greatest width nearly equal to the greatest width of the precostal field.
 6 (7). Foveolae triangular (Figure 982). Antennae long, reaching or extending beyond the posterior margin of the pronotum. Tegmina longer; the length of a tegmen in the ♀ 3.0-3.5, but in the ♀ 2.5 times more than its greatest width. Length of body ♂ 12.3-14.3, ♀ 17-21.2 mm; tegmina ♂ 6.5-7.2, ♀ 6.1-7.3 mm. — Hissar Mts. *3. M. kuznetzovae Um.

Mishchenko, 1947-64, 65, 70. — kuznetzovae Umnov, 1931, Wien. Ent. Zeitg., XLVIII, 134.

- 7 (6). Foveolae trapezoidal (Figure 985). Antennae short, far from reaching the posterior margin of the pronotum. Tegmina shorter; the length of a tegmen in the ♂ 2.5, in the ♀ twice more than its greatest width. Length of body ♂ 12.8-13.4, ♀ 17.1-17.9 mm;

tegmina σ 4.9-5.7, φ 4.7-5.1 mm. — Tadzhikistan: northeastern spurs of Mt. Baba-tag. *4. M. robusta Mistsh.

Mishchenko, 1947:64, 66, 70.

- 8 (3). Foveolae in the φ trapezoidal (Figure 986). Eyes in the φ large, the greatest diameter of the eye 1.5 times more than the subocular groove. φ tegmina without dark spots in the median field.
- 9(10). σ tegmina with dense venation in the costal field, with 11-12 transverse veins in the colorless part, greatest width of the costal field in the σ 2.5-3 times more than the greatest width of the precostal field, but in the φ equal to that width *5. M. inornata Mistsh.
- a (b). Tegmina in both sexes with a wide costal field, its greatest width 3 times more than the greatest width of the subcostal field. Length of body σ 10.5, φ 15.5 mm; tegmina σ 5.2, φ 5.6 mm. — Northern Iran. 5a. M. inornata inornata Mistsh.

Mishchenko, 1947 64, 67, 70, 71

- b (a). Tegmina in both sexes with a narrower costal field, its greatest width 2-2.5 times more than the greatest width of the subcostal field. Length of body σ 10.7-21.1, φ 13.9 to 17.4 mm; tegmina σ 5.0-5.1, φ 5.2-5.8 mm. — Turkmenia, Mt. Kopet Dag. *5b. M. inornata insolita Mistsh

Mishchenko, 1947 64, 68, 70, 71

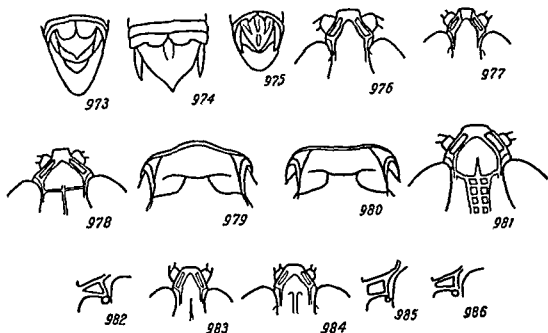
- 10 (9). σ tegmina with a sparse venation in the costal field, with nine transverse veins in the colorless part, greatest width of the costal field in the σ 2, in the φ 1.25 times more than the greatest width of the precostal field. Length of body σ 10, φ 13.2 mm, tegmina σ 5, φ 5.5 mm. — Mts. of southern Turkmenia *6. M. deserti Uv.

Uvarov, 1912, Trudy Russkogo Entomologicheskogo obshchestva, XL, 3 19 Figures 1A 1B Uvarov 1927a 94, Figures 97A, 97B Mishchenko, 1947 64 68 70

137. Genus Kazakia B -Blenko

Bei Blenko, 1933, Bol Soc Esp Hist Nat, XXXIII 332 338

Head short. Eyes situated in the middle part of the head. Vertex short. Foveolae sharp, triangular, partially visible from above, wide and short, the length of a pit nearly 1.5 times more than its greatest width. Frontal ridge wide and flat, hardly depressed at the median ocellus, its margins effaced. Occiput smooth, without a median carina. Pronotum without the light X-shaped marking all three transverse grooves well



Figures 973-986
(Original)

973—Doclostaurus (Stauronotulus) hauensteini hauensteini (I. Bol.), ♂, tip of abdomen from above; 974—D. (S.) kraussi ornatus Mistshenko subsp. n., ♂, type, supraanal plate; 975—D. (S.) diamesus B.-Bienko, ♂, tip of abdomen from above; 976—D. (S.) kraussi claripes Mistshenko subsp. n., ♂, type, vertex from above; 977—D. (S.) diamesus B.-Bienko, ♂, vertex from above; 978—Notostaurus albicornis rubripes Mistshenko subsp. n., ♀, allotype, vertex from above; 979—N. albicornis rubripes Mistshenko subsp. n., ♂, type, mesosternum; 980—N. albicornis robustus Mistshenko subsp. n., ♂, type, mesosternum; 981—N. popovicom-tulus Mistshenko subsp. n., ♀, allotype, vertex from above; 982—Mizonocara kuznetzovae Um., ♀, left foveola; 983—M. notata Mistsh., ♂, vertex from above; 984—M. robusta Mistsh., ♂, vertex from above; 985—M. robusta Mistsh., ♀, left foveola; 986—M. inornata inornata Mistsh., ♀, left foveola.

450 developed, always extending from the pronotal disk onto the lateral lobes, lateral carinae in the anterior part weak, slightly convergent, absent in the middle part, in the posterior part distinct, slightly converging toward the median carina, posterior margin projecting. Tegmina and wings well developed, median field of tegmina with a spurious median vein; cubital field of tegmina weakly widened, its greatest width distinctly less than the narrowest part of the apical part of the median field. Tarsus with a small empodium between the claws which is far from reaching the middle of the claws. Hind femora with rounded dorsal genicular lobes. Hind tibia with a small ventral spur on the inner aspect, slightly larger than the dorsal spur on the same side. Hind tarsus with a small first segment, considerably smaller than the other two segments. Metasternum in both sexes with distinctly separated lobes. Tympanal organ on the first abdominal tergite well developed.

- One species is known, living in southern and southeastern Kazakhstan.
 1(1). Vertex strongly impressed, its width between the eyes in the ♂ 1.5, in the ♀ 1.25 times more than the width of the frontal ridge between the antennae. Pronotum with a posterior transverse groove running in the middle, the length of the anterior part of the pronotum is equal to the posterior part of the pronotum. Nearly all the distal end of the hind femur and the base of the hind tibia black. Length of body ♂ 11.9-14, ♀ 14.8-19.5 mm; tegmina ♂ 9.3-11.4, ♀ 15-17 mm.
 —Southern and southeastern Kazakhstan.....
 *1. K. tarbinskii B.-Blenko.

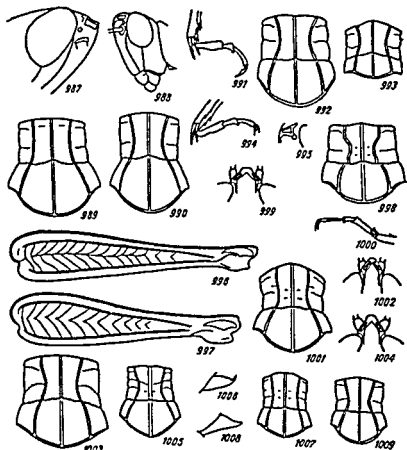
—Tarbinskii Bel-Bienko, 1933, Bol. Soc. Esp. Hist. Nat., XXXIII:334, Figures 12-13, Bel-Bienko, 1948, Izhv. AN Kazakhskoi SSR. (seriya zoologicheskaya), 8:187

138. Genus Eremippus Uv.

Uvarov, 1926, Eos, 11:243; Uvarov, 1927a:59, 97; Tarbinskii, 1940:27, 164, 181; Tarbinskii, 1948:113, 119. —Stenobothrus Brunner-Wattenwyl, 1882:84, 100 (partim); Jakobson, 1905:165, 177, 219 (partly) —Stenobothrus rubgen Stauoderus Jakobson, 1905:179, 225 (partim). —Stauoderus Uvarov, 1925c:38, 52 (partim).

Type of genus: Eremippus simplex (Ev)

Head short. Eyes situated in the middle part of the head. Vertex short. Foveolae usually narrow and long, rarely shorter, the length of a pit 1.5-2.5 times more than its greatest width. Frontal ridge narrow, depressed for nearly all its length, its margins distinct. Pronotum short, posterior transverse groove well developed, intersecting the lateral carinae and extending from the pronotal disk onto the lateral lobes, the two anterior transverse grooves weak, often hardly perceptible, sometimes not intersecting the lateral carinae, only sometimes in the ♂ the median groove intersects them; lateral carinae usually sharp, sometimes effaced, the posterior margin straight or projecting. Tegmina and wings either well developed or abbreviated, the median field of the tegmina with a spurious median vein; cubital field of tegmina weakly widened, its greatest width equal to or distinctly less than the narrowest part of the apical part of the median field. Tarsus with a small empodium between the claws, which hardly reaches the middle of the claws. Hind femur with rounded dorsal genicular lobes. Hind tibia with a small ventral spur on the inner



Figures 987-1009
(987 after Uvarov, others original)

987—*Eremippus angulatus* Uv., ♂, head from side; 988—*E. costatus* Tarb., ♂, head from side; 989, 990—*E. persicus* Uv., ♀, pronotum from above; 991—*E. persicus* Uv., ♀, left hind tarsus from side; 992—*E. simplex maculatus* Mirtschenko subsp. n., ♀, allotype, pronotum from above; 993—*E. nanus* Mirtschenko sp. n., ♀, allotype, pronotum from above; 994—*E. comatus* Mirtschenko sp. n., ♀, paratype, left hind tarsus from side; 995—*E. onerosus* Mirtschenko sp. n., ♀, left foveola; 996—*E. kozlovi* Mirtschenko sp. n., ♀, type, left hind femur from side; 997—*E. nudus* Mirtschenko sp. n., ♀, allotype, left hind femur from side; 998—*E. comatus* Mirtschenko sp. n., ♀, allotype, pronotum from above; 999—*E. comatus* Mirtschenko sp. n., ♀, paratype, vertex from above; 1000—*E. carinatus* Mirtschenko sp. n., ♂, type, left hind tarsus from side; 1001—*E. nudus* Mirtschenko sp. n., ♀, allotype, pronotum from above; 1002—*E. simplex simplex* (Ev.), ♀, vertex from above; 1003—*E. simplex maculatus* Mirtschenko subsp. n., ♂, type, pronotum from above; 1004—*E. simplex maculatus* Mirtschenko subsp. n., allotype, left dorsal valve of ovipositor from side; 1005—*E. simplex rectus* Mirtschenko subsp. n., ♂, type, pronotum from above; 1006—*E. simplex rectus* Mirtschenko subsp. n., ♀, allotype, left dorsal valve of ovipositor from side; 1007—*E. guttatus notius* Mirtschenko sp. et subsp. n., ♂, type, pronotum from above.

with a long first segment; its length is considerably more than the length of the third segment, but without the claw (Figure 994). Length of body ♂ 10.8-13.1, ♀ 12.8-14.8 mm, tegmina ♂ 8.5-9.5, ♀ 10.5 to 11.1 mm. —Stalingrad Region: environs of Stalingrad [now Volgograd], Obil'noe; Chkalov Region, Sol'-Iletskii District: towns of Donguz, Mayak, Ashchebutak, Ak-bulak; western Kazakhstan: Aktyubinsk, Temir river near the town of Temir, Bakr-tau east of Mugodzhir, Terekli-Koilibai in the Malye Barsuki sands (type from Aktyubinsk).

. *5. E. comatus Mistshenko sp. n.

- 14 (13). Ventral aspect of front femora and tibiae in the ♂ with sparser long hairs not making a distinct brush. Hindtarsus in the ♂ with a short first segment; its length equal to the length of the third segment (Figure 1000). ♂ Pronotum with a posterior transverse groove running far behind the middle of the pronotum. ♂ Tegmina reaching the distal ends of hind femora. ♂ mesosternum with a wide interspace between the lobes, its narrowest part 1.5 times more than its length. ♀ Unknown. Length of body ♂ 11.7, tegmina 9.4 mm. —Turkmenia: Repetek.

. *6. E. carinatus Mistshenko sp. n.

- 15 (12). Lateral carinas of the pronotum in both sexes regular, gradually concave from the anterior margin to the posterior transverse groove (Figure 1001), sometimes the lateral carinae in the anterior part of the pronotum are irregular, then in the ♀ the vertex has a narrow acute-angular fastigium (Figure 1002), and in the ♂ the greatest width of the anterior part of the pronotum between the lateral carinae is hardly more than the narrowest part of the pronotum (Figure 1003).

- 16 (23). Posterior transverse groove in both sexes extending along the middle of the pronotum (Figure 1003), sometimes the groove runs along behind the middle, then in the ♂ the interspace between the lobes of the mesosternum is nearly quadrate, i. e., of the same width and length, and the length of the individual middle segment of the antenna is 1.5 times more than its greatest width but in the ♀ the greatest width of the vertex is 1.5 times more than the width of the frontal ridge between the antennae (Figure 1004).
- 17 (18). Vertex in both sexes wide, its greatest width twice more than the width of the frontal ridge between the antennae (Figure 1002). Pronotum in both sexes in the anterior part with strongly concave, sometimes entirely obsolete, lateral carinae (Figure 1003).

. *7. E. simplex (Ev.) —Desert 'little horse' grasshopper [Konek pustynnyi].

- a (b). Antennae in both sexes short, the length of a separate middle segment of the antennae in the ♂ 1.5 times more than its own greatest width, but in the ♀ it is equal to or hardly more than it. Length of body ♂ 10.5-12.5, ♀ 13.5-18.3 mm, tegmina ♂ 9.2-11.2, ♀ 11.3-15.2 mm. —Southeastern European part of the U. S. S. R., Kazakhstan, except the northern part.

. *7a. E. simplex simplex (Ev.)

side, slightly larger than the dorsal spur of the same side. Metasternum in both sexes with distinctly separated lobes. The tympanal organ on the first abdominal segment well developed. ♂ ovipositor with a distinct pre-apical notch on the dorso-outer margin of the dorsal valves and on the ventro-inner margin of the ventral valves.

451 28 species are known, being distributed in the Crimea, southeastern European part of the U.S.S.R., in the Caucasus, in southern West Siberia, Kazakhstan, Middle Asia and Asia Minor, Iran, and Mongolia.

- 1 (2). ♂ vertex in profile making a distinct angle with the frontal ridge (Figure 987). ♂ tegmina hardly extending beyond the distal end of the hind femur; the greatest width of the costal field of the tegmen hardly more than the greatest width of the subcostal field. ♀ Unknown. Length of body ♂ 12, tegmina 10.5 mm. — Asia Minor (according to Uvarov) 1. E. angulatus Uv.

Uvarov, 1934, Eos, X-93, Figures 26A, 27A.

- 2 (1). Tegmina in both sexes with a wide costal field; its greatest width 1.5-3 times more than the greatest width of the subcostal field; sometimes in the ♂ hardly more than that width, then either the apex of the vertex [i.e., fastigium] is rounded in profile, not making a sharp angle with the frontal ridge (Figure 988), or the tegmina are abbreviated, not reaching by far the distal end of the hind femora.
- 3 (4). ♀ vertex rather narrow; its greatest width hardly shorter than its own lateral length (i.e., the distance taken from the fastigium to the line of the anterior margin of the eyes). Foveolae in the ♀ readily seen from above. Tegmina in both sexes well developed; the greatest width of the costal field in ♂ tegmina 3 times more than the greatest width of the subcostal field. Length of body ♂ 11.5, ♀ 16.5 mm; tegmina ♂ 11, ♀ 12.5 mm. — Asia Minor (according to Uvarov) 2. E. gracilis Uv.

Uvarov, 1934, Eos, X-91, Figures 26G, 27G.

- 4 (3). ♀ vertex wider; its greatest width nearly equals its lateral length (i.e., the distance taken from the fastigium to the line of the anterior margin of the eyes), sometimes less than this length, then either the foveolae are seen only partially from above, or the tegmina are greatly abbreviated, hardly reaching the middle of the hind femora. ♂ tegmina with a narrow costal field; the greatest width of the costal field nearly equal to or 1.25-2 times more than the greatest width of the subcostal field.
- 5 (6). Pronotum in both sexes with a short anterior part; the length of the anterior part is significantly less than the length of the posterior part because the posterior transverse groove extends far before the middle of the pronotum (Figures 989, 990), the width of the posterior part of the pronotum variable). Hind tarsus in the ♀ with a short first segment, equal in length to the third segment, but without the claw (Figure 991). Length of body ♂ 12.5-15.0, ♀ 16.8-20.5 mm; tegmina ♂ 12.1-14.0, ♀ 16.5-20.0 mm. — Armenia (Dzhuga on the Araks!),

Nakhichevan ASSR (Ordubatl!), southeastern Kazakhstan (Karzhantau Mts.), southern Turkmenia, Uzbekistan (Ferghana valley and Chupanata Mts.). Slightly damages seedlings of alfalfa in southern Turkmenia *3. E. persicus Uv.

Uvarov in Uvarov and Moritz, 1929, Ann Mag Nat Hist, (10), IV 534 — uvarovi Moritz, 1928, Materialy po obsledovaniyu saranchevykh v Severnoi Persii za 1927 i 1928 gody (Data on the Locust Family in Northern Persia in 1927 and 1928) 36 (Stenobippus).†
Biology Mishchenko, 1949b 160, Mishchenko, 1950, Doklady AN SSSR (new series), LXXI:789

- 452 6 (5). Pronotum in both sexes with a long anterior part; the length of the anterior part equals or is significantly more than the length of the posterior part because the posterior transverse groove in both sexes extends along the middle of the pronotum or far behind it (Figure 992, 993), if sometimes the posterior transverse groove of the ♀ pronotum extends across before the middle and the length of the anterior part of the pronotum is considerably less than the length of the posterior part of the pronotum, then the length of the first hind-tarsal segment is considerably greater than the length of the third segment of the same tarsus without the claw (Figure 994).
- 7 (42). Tegmina in both sexes fully developed, extending far beyond the middle of the hind femora, if sometimes they reach it then the greatest width of the vertex is 2-2.5 times more than the width of the frontal ridge between the antennae.
- 8 (37). Foveolae in both sexes long, narrow, the length of a pit 2-2.5 times more than its greatest width (Figure 995).
- 9 (36). Pronotum in both sexes with a narrow posterior part, the greatest width of the posterior part between the lateral carinae is 1.25-1.5 times more than its own length (Figure 992).
- 10 (11). Hind femora in the ♀ longer and slenderer, length of a femur 5.5 times more than its greatest width (Figure 996). Pronotum in the ♀ with the posterior transverse groove extending across nearly in the middle of the pronotum, lateral carinas anteriorly strongly arcuately concave. Tegmina in the ♀ extending beyond distal ends of hind femora, ♀ mesosternum with a moderately wide interspace between the lobes, its narrowest part distinctly greater than its length. ♂ unknown. Length of body ♀ 17.1, tegmina 14.9 mm. — Eastern Mongolia: Noin-bogdo—Oroknor 4. E. kozlovi Mistshenko sp. n.
- 11 (10). Hind femora in both sexes stout, length of a femur 4-4.5 times more than its greatest width (Figure 997).
- 12 (15). Lateral carinae of the pronotum in both sexes in the anterior part irregular, at the anterior margin nearly parallel but farther on they are strongly arcuately concave and at the posterior transverse groove weakly divergent (Figure 998). Vertex in the ♀ with a wide right-angled or obtuse-angled fastigium (Figure 999). Greatest width of anterior part of the pronotum in the ♂ between the lateral carinae 1.5-1.75 times more than the narrowest part of the pronotum (Figure 998).
- 13 (14). Ventral aspect of the front femora and tibia in the ♀ with very dense long hairs, making a distinct little brush. Hind tarsus in both sexes

† Cited by Moritz for northern Iran under the name of Stenobippus uvarovi Moritz sp. nov., but without a description of the species (nom. nud.)

—*simplex* Eversmann, 1859, Bull. Soc. Nat. Moscou, XXXII, 1:133 (*Stenobothrus*), Brunner-Wattenwyl, 1882:103, 119 (*Stenobothrus*), Jakobson, 1905:181, 229 (*Stenobothrus*, subgen. *Stau-roderus*) (partim); Uvarov, 1927a:98, Figure 42 (partim), Tarbinskii, 1927:59 (partly), Bereshtkov, 1937:64 (partim), Tarbinskii, 1948:120, Figures 151, 152b (partim).

- b (a). Antennae in both sexes longer; length of a separate middle segment of the antenna in the ♂ 2, but in the ♀ 1.5 times more than its greatest width.
- c (d). Posterior transverse groove in the ♂ extending along the middle of the pronotum (Figure 1005). ♀ ovipositor with a distinct preapical notch on the outer dorsal margin of the dorsal valves, the ends of the dorsal valves pointed (Figure 1006). Length of body ♂ 11.3-13.6, ♀ 16.6-20.8 mm; tegmina ♂ 9.6-11.7, ♀ 13.4-16.6 mm.—Southeastern Kazakhstan: gorge of Kapchegai northwest of the town of Iliisk, the town of Panfilov (Dzharkent); China (Sinkiang): Kol'. (Type from Kapchegai).
- d (c). Posterior transverse groove in the ♂ extending along behind the middle of the pronotum (Figure 1007). ♀ ovipositor with hardly perceptible preapical notch on the dorso-outer margin of the dorsal valves, the ends of the dorsal valves blunted (Figure 1008). Length of body ♂ 12.1-13.6, ♀ 18.2-18.8 mm; tegmina ♂ 9.1-10.6, ♀ 11.6-13.1 mm;—East Kazakhstan: valley of the river of Dzhaman west of the town of Zaisan, Zaisan, settlement of Kara-ungur on the north slope of Mt. Saur. (Type from valley of the Dzhaman).
- 455 18(17). *7b. *E. simplex maculatus* Mistshenko subsp. n.
- Vertex in both sexes rather narrow; its greatest width 1.25-1.5 times more than the width of the frontal ridge between the antennae (Figure 1004). Pronotum in both sexes in the anterior part often with weakly concave, always distinct, lateral carinae (Figure 1001).
- 19(20). Pronotum in both sexes with a wide posterior part; the greatest width of the posterior part between the lateral carinae twice more than the greatest width of the anterior part of the pronotum (Figure 1001). Posterior transverse groove in both sexes extending along the middle of the pronotum or barely in front of it; lateral carinae in the anterior part weakly arcuately concave (Figure 1001). Tegmina in both sexes hardly extending beyond distal ends of the hind femora. Mesosternum in both sexes with moderately wide interspace between the lobes; its narrowest part 1.25-1.5 times more than its length. Length of body ♂ 11.8-12.7, ♀ 15.5-19.3 mm; tegmina ♂ 11.3-12.7, ♀ 12.5-12.7 mm.—Tadzhikistan, western Pamir: Vanch, village De north of Vaznaut, Khorog, Roshan (Kalai-vamar). (Type from Vanch).
- 20(19). *8. *E. nudus* Mistshensko sp. n.
- Pronotum in both sexes with a narrower posterior part; the greatest width of the posterior part between the lateral carinae 1.25-1.5 times more than the greatest width of the anterior part of the pronotum (Figure 1009).

- 21 (22). Eyes in both sexes large, vertical diameter of the eye in the σ nearly 2, but in the \varnothing 1.5-1.75 times more than the subocular groove (Figure 1010). Antennae in the σ rather slender, the length of a separate middle segment of the antenna always 1.5 times more than its greatest width. Maxillary palpi in the \varnothing with a long fifth (apical) segment, its length 1.5 times more than the length of the fourth segment of the same palpus. Mesosternum in the \varnothing with rather narrow interspace between the lobes, its narrowest part always equal to its length. Length of body \varnothing 12.1-13.4, \varnothing 14.8-17.3 mm, tegmina \varnothing 9.7-11.4, \varnothing 11.8-13.3 mm. — Armenia: Erevan, Darasham II railroad station and Nyuvady on the Araks Nakhichevan ASSR: Ordubat, Disar near Ordubat. (Type from Nyuvady). . . *9. E. tenellus Mistshenko sp. n.
- 22 (21). Eyes in both sexes smaller, vertical diameter of the eye in the σ 1.5, in the \varnothing 1.25 times the length of the subocular groove (Figure 1011), sometimes in the σ twice that of the groove, then the length of a separate middle segment of the antenna hardly exceeds its greatest width. Maxillary palpi in the \varnothing with shorter fifth (apical) segment, its length nearly equal to the length of the fourth segment of the same palpus, sometimes greater than it is, then the narrowest part of the interspace between the lobes of the mesosternum in the \varnothing 1.5 times its length. 10. E. guttatus Mistshenko sp. n.
- a (b). σ tegmina at the apex of the median field with a distinctly curved radial vein, strongly approaching the medial vein; sometimes the radial vein is straight, then the narrowest part of the interspace between the lobes of the mesosternum is nearly equal to its length. Mesosternum in the \varnothing with rather narrow interspace between the lobes, its narrowest part nearly equal to its length (Figure 1012). Length of body σ 12.4-13.3, \varnothing 15.7-16.6 mm, tegmina σ 10.5-11.9, \varnothing 13.1-14.9 mm. — Northern Iran: Kazvin, Semnan. (Type from Kazvin). 10a. E. guttatus guttatus Mistshenko subsp. n.
- b (a). σ tegmina at the apex of the median field with a straight radial vein, not approaching the medial vein. Mesosternum in both sexes with a wide interspace between the lobes, its narrowest part 1.5 times greater than its length (Figure 1013). Length of body σ 10.2-12.7, \varnothing 13.2-14.4 mm, tegmina σ 9.3-9.5, \varnothing 11-12.6 mm. — Northern Iran: Khorasan 10b. E. guttatus notius Mistshenko subsp. n.
- 23 (16). Posterior transverse groove in both sexes extending distinctly behind the middle of the pronotum (Figure 1014). Interspace between the lateral lobes of the mesosternum in the σ usually transverse (Figure 1015), but if sometimes it is nearly quadrate, then the length of a separate middle segment of the antenna twice more than its greatest width. The greatest width of the vertex in the \varnothing twice more than the width of the frontal ridge between the antennae (Figure 1016).
- 24 (25). Mesosternum with a narrow interspace between the lobes, especially in the \varnothing , the narrowest part of the interspace is equal to or hardly greater than its length (Figure 1017). Antennae in the σ

long and slender; length of a separate middle segment of the antenna 1.75-2 times more than its greatest width. The ventral aspect of the front femora and tibiae in the ♂ with long, rather dense hairs. ♀ ovipositor with pointed ends on the valves. Length of body ♂ 11.2-14.4, ♀ 13.4-21.5 mm; tegmina ♀ 8.3-11.1, ♂ 9.2-15.4 mm. —South Rostov Region, Stavropol Territory, Chkalov Region (?), Azerbaijan (?), Kazakhstan, Uzbekistan, southern Turkmenia (!), northern Tadzhikistan; western China; Sinkiang (!). *11. E. miramae Tarb.

Tarbinskii, 1940:27, 181; Tarbinskii, 1948:120, Figure 152b —mirami Tarbinskii, 1927:59.
Biology: Zimin, 1938:34, 58, Plate VI, Figure 33.†

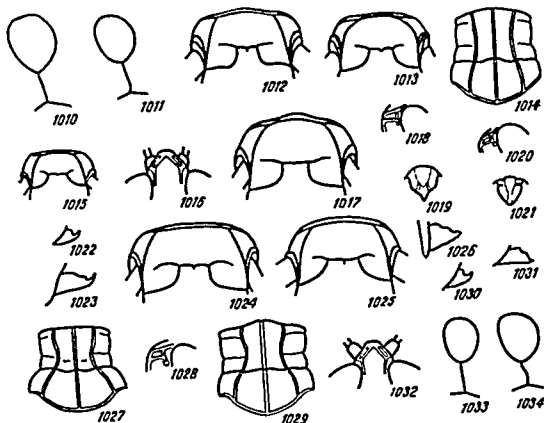
- 25 (24). Mesosternum in both sexes with a wide transverse interspace between the lobes; the narrowest part of the interspace 1.5 times greater than its length (Figure 1015).
26 (33). Tegmina in both sexes reaching the distal ends of the hind femora.
27 (28). Front femora and tibiae in the ♂ with dense long hairs along the ventral aspect. Pads of ventral valves of ♀ ovipositor with tubercles like calluses, sometimes making a convex line near the inner margin of the pad. ♂ antennae moderately slender, the length of a separate middle segment of the antenna 1.5 times more than its greatest width. Length of body ♀ 10.0-13.7, ♂ 13.0-18.4 mm; tegmina ♀ 7.9-9.7, ♂ 9.1-12.2 mm. —Saratov Region, southern Crimea, Ciscaucasus, Azerbaijan. *12. E. costatus Tarb.

Tarbinskii, 1927:59, Tarbinskii, 1940:27, 181, Figure 149B, Tarbinskii, 1948:120, Figure 152a.

- 28 (27). Front femora and tibiae of the ♂ with sparse short hairs on the ventral aspect. Pads of ventral valves of the ♀ ovipositor pointed, ** smooth, without tubercles like calluses.
29 (32). ♀ antennae longer; the length of a separate middle segment of the antenna 1.5 times more than its own greatest width. Tegmina in the ♂ very nearly reaching distal ends of the hind femora.
457 30 (31). Foveolae of the ♂ wide and short; length of a pit twice more than its greatest width (Figure 1018). Supraanal plate in the ♂ with distinctly produced pointed apex (Figure 1019). ♀ unknown. Length of body ♀ 10.5-11.9, tegmina 6.7-8.1 mm. —Krasnodar Territory: Staro-Titarovskaya. *13. E. opacus Mistshenko sp. n.
458 31 (30). Foveolae in the ♂ narrower and longer; length of a pit 2.5 times more than its greatest width (Figure 1020). Supraanal plate in the ♂ with apex rounded, not produced (Figure 1021). ♀ unknown. Length of body ♂ 11.1, tegmina 8.1 mm. —Eastern Turkmenia: Farab. *14. E. foveolatus Mistshenko sp. n.

† Apparently the description of the egg pod given by Zimin (1938:34, 58, plate VI, Figure 33) belongs to Eremippus comatus Mikh. sp. nov. and not to E. miramae Tarb. Unfortunately, it is not possible to solve this question at the present time because specimens of the imago which deposited the egg pods described by Zimin are not known to us.

** [The Russian term also means punctate, dotted, or pitted].



Figures 1010-1034
(Original)

- 1010—Eremippus tenellus Mistshenko sp. n., ♂, type, left eye from side,
 1011—E. guttatus notius Mistshenko sp. et subsp. n., ♂, type, left eye from
 side; 1012—E. guttatus guttatus Mistshenko sp. et subsp. n., ♀, allotype,
 mesosternum; 1013—E. guttatus notius Mistshenko sp. et subsp. n., ♀, allo-
 type, mesosternum; 1014—E. miramae Tarb., ♂, pronotum from above; 1015—
E. foveolatus Mistshenko sp. n., ♂, type, mesosternum; 1016—E. miramae
 Tarb., ♀, vertex from above; 1017—E. miramae Tarb., ♀, mesothorax,
 1018—E. opacus Mistshenko sp. n., ♂, type, left foveola from side; 1019—
E. opacus Mistshenko sp. n., ♂, type, supraanal plate from above; 1020—E. foveo-
latus Mistshenko sp. n., ♂, type, left foveola from side; 1021—E. foveola-
latus Mistshenko sp. n., ♂, type, supraanal plate from above; 1022—E. bey-bienkoi
 Mistshenko sp. n., ♀, allotype, left dorsal valve of ovipositor from side, 1023—E.
veltistshevi hissaricus Mistshenko subsp. n., ♀, allotype, left dorsal valve
 of ovipositor from side; 1024—E. veltistshevi veltistshevi Mir, ♀, meso-
 sternum; 1025—E. veltistshevi hissaricus Mistshenko subsp. n., ♀, allo-
 type, mesosternum; 1026—E. onerosus Mistshenko sp. n., ♀, allotype, left
 dorsal valve of ovipositor from side, 1027—E. flavus Mistshenko sp. n., ♀,
 pronotum from above; 1028—E. pusillus B.-Bienko, ♀, left vertexal
 pit, 1029—E. parvulus Mistshenko sp. n., ♀, allotype, pronotum from above,
 1030—E. pusillus B.-Bienko, ♀, left dorsal valve of ovipositor from side,
 1031—E. parvulus Mistshenko sp. n., ♀, allotype, left dorsal valve of ovi-
 positor from side; 1032—E. luppovae Mistshenko sp. n., ♀, allotype, vertex
 from above; 1033—E. pilosus Mistshenko sp. n., ♂, type, left eye, 1034—
E. luppovae Mistshenko sp. n., ♂, type, left eye.

- 32 (29). Antennae in both sexes shorter; length of a separate middle segment of the antenna equal to or hardly more than its greatest width. ♂ tegmina extending beyond the distal ends of hind femora. Vertex in the ♂ narrow; its greatest width equal to the length of its own lateral margin. ♂ pronotum with effaced lateral carinae in the anterior part. ♀ ovipositor with a distinct preapical notch on the outer dorsal margin of the dorsal valves (Figure 1022). Length of body ♂ 9.2, ♀ 12.7 mm; tegmina ♂ 8.2, ♀ 7.4 mm. — Southwestern Kazakhstan, Kara Kum desert in the Aral Sea area: Baigan sands, Karadzhuzgun-Dzhatym-chagyr. (Type from Baigan sands). . . . *15. E. bey-bienkoi Mistshenko sp. n. †
- 33 (26). Tegmina in both sexes far from reaching the distal ends of hind femora.
- 34 (35). Ventral aspect of the front femora in the ♂ with long dense hairs. ♀ ovipositor with a sharp deep preapical notch on the outer dorsal margin of the dorsal valves; apex of the valves pointed (Figure 1023). . . . *16. E. veltistshevi Mir.
- a (b). Mesosternum in both sexes with a narrow space between the lobes; its narrowest part considerably less than the narrowest part of the mesosternal lobe (Figure 1024). Length of body ♂ 11.9-13.3, ♀ 17.5-19.6 mm; tegmina ♂ 7.8-8.2, ♀ 9.5-10.6 mm. — North Tadzhikistan: Zeravshan Mts. . . . *16a. E. veltistshevi veltistshevi Mir.

—veltistshevi Miram, 1935, Trudy Tadzhikskoi bazy AN SSSR, 5.228, Figures 6-7.

- b (a). Mesosternum in both sexes with a wider space between the lobes; its narrowest part is equal to the narrowest part of the mesosternal lobe (Figure 1025). Length of body ♂ 10.7-11.8 ♀ 16.5-18.9 mm; tegmina ♂ 7.3-8.7, ♀ 8.3-8.5 mm. — Tadzhikistan: Lake Iskander-kul'. . . . *16b. E. veltistshevi hissaricus Mistshenko subsp. n.
- 35 (34). Ventral aspect of front femora in the ♂ with short sparse hairs. ♀ ovipositor with an indistinct wide preapical notch on the dorso-outer margin of the dorsal valves; apex of the valves blunted (Figure 1026). Length of body ♂ 10.7-12.4, ♀ 15.5-19.1 mm; tegmina ♂ 7.1-8.7, ♀ 9.8-11.4 mm. — Southern Turkmenia: Germab, Sary-dag, canyon of Chuli in Kopet-dag [mts.]. (Type from Chul canyon). . . . *17. E. onerosus Mistshenko sp. n.
- 36 (8). Pronotum in the ♀ with a wide posterior part; the greatest width of the posterior part between the lateral carinae twice more than its own length (Figure 1027). ♀ unknown. Length of body in the ♀ 12.6; tegmina 9.6 mm. — Kazakhstan: Karaganda Region. . . . *18. E. flavus Mistshenko sp. n.
- 37 (9). Foveolae in both sexes short; length of a pit only 1.5 times more than its greatest width (Figure 1028).
- 459 38 (41). ♂ tegmina reaching or extending beyond distal ends of hind femora. ♀ pronotum narrow; length of the posterior part of the

† Named in honor of Prof. G. Ya. Bei-Bienko.

pronotum equal to or $2/3$ its greatest width between the lateral carinae (Figure 1029).

- 39 (40). ♂ antennae short and stout, the length of a separate middle segment of the antenna hardly greater than its greatest width. ♂ ovipositor with a distinct preapical notch (Figure 1030) on the dorso-outer margin of the dorsal valves. Length of body ♂ 9.8-11.4, ♀ 11.9-14.7 mm, tegmina ♂ 7.8-9.3, ♀ 7.8-9.8 mm. —Southeastern Kazakhstan *19. E. pusillus B.-Bienko

Bei-Bienko, 1948, Izvestiya AN Kazakhskoi SSR, (seriya zoologicheskaya) 8:189 Figure 2

- 40 (39). ♂ antenna more slender, the length of a separate middle [segment of] the antenna 1.5 times more than its greatest width. ♀ ovipositor with a very weak preapical notch (Figure 1031) on the dorso-outer margin of the dorsal valves. Length of body ♂ 10.5-11.1, ♀ 14.3 to 15.4 mm, tegmina ♂ 7.8-8.2, ♀ 9.2-10.6 mm. — West China (Sinkiang) Shikho 20. E. parvulus Mistshenko sp. n.
- 41 (38). ♂ tegmina not reaching by far the distal ends of the hind femora. ♀ ovipositor wide, length of the posterior part of the pronotum nearly $1/2$ the greatest width between the lateral carinae (Figure 993). Length of body ♂ 9.2, ♀ 12.6 mm, tegmina ♂ 5.7, ♀ 6.1 mm. —Southwestern Kazakhstan, Kara Kum desert in the Aral Sea area Dzhar-burlyu—Dzhimbara-kum, Terekli—Koilibai. (Type from Dzhar-burlyu—Dzhimbara-kum) *21. E. nanus Mistshenko sp. n.
- 42 (7). Tegmina in both sexes perceptibly abbreviated, hardly reaching the middle of the hind femora. Vertex in both sexes narrow, its greatest width 1.5 times greater than the width of the frontal ridge between the antennae (Figure 1032).
- 43 (44). Eyes in the ♂ small, vertical diameter of an eye 1.5 times greater than the subocular groove (Figure 1033). Tegmina in the ♂ with a wide median field, its greatest width 2.5 times more than the greatest width of the cubital field. Ventral aspect of the front femora and tibiae in the ♂ with long dense hairs. ♀ unknown. Length of body ♂ 10.9, tegmina 5.6 mm. —Kirghizia Frunze *22. E. pilosus Mistshenko sp. n.
- 44 (43). Eyes in the ♂ large, vertical diameter of an eye twice more than the subocular groove (Figure 1034). Tegmina in both sexes with a narrower median field, its greatest width 1.75-2 times more than the greatest width of the cubital field. Ventral aspect of the front femora and tibiae in the ♂ with short sparse hairs. Length of body ♂ 10.5-10.9, ♀ 16.3-18.2 mm, tegmina ♂ 6.1-7.0, ♀ 7.4-8.2 mm. —Tadzhikistan, western Pamir Rushan (Kala-i-vamar) *23. E. luppovae Mistshenko sp. n. †

† Named in honor of E. P. Luppova

139. Genus Mecostethus Fieb.

Fieber, in: Kelch, 1852, Grundlage zur Kenntniss der Orthoptera Oberschlesiens; Fieber, 1853, Lotos, III:99; Brunner-Wattenwyl, 1882 83, 94, Jakobson, 1905:166, 186, 247; Shiraki, 1910:5, 18, Uvarov, 1925c:39, 67; Obenberger, 1926 62, 73; Miram, 1933 20, 34, Bereshkov, 1937:29, 45, Tarbinski, 1940 29, 165; Tarbinski, 1948:114, 122. — Stethophyma Fischer, 1853, Orth. Eur.:297 (partim); 460 Chopard, 1922:158. — Stethophyma Fischer, 1853, Orth. Eur.:357 (partim).

Type of genus: Mecostethus grossus (L.).

Head short. Eyes situated in the middle part of the head. Vertex short. Foveolae very small, triangular, sometimes indistinct, nearly absent. Antennae rather short; the length of a separate median segment of the antenna 2-3 times more than its greatest width. Pronotum flat; posterior transverse groove distinct, two other less distinct grooves, sometimes the middle one entirely absent; posterior margin projecting. Tegmina and wings well developed; nearly all the fields of the tegmina with a spurious longitudinal vein; anterior part of the median field of the tegmina with dense venation; its greatest width distinctly greater than the greatest width of the posterior part of this same field; cubital field weakly widened; its greatest width equal to or distinctly less than the narrowest part of the apical part of the median field. Tarsi with a large empodium between the claws, equal to the claws or extending beyond their apices. Hind femora with rounded dorsal genicular lobes. Hind tibia with small ventral spur on the inner side; slightly larger than the dorsal spur of the same side. Mesosternum in both sexes with separated lobes. Tympanal organ on the first abdominal tergite well developed. Subgenital plate of the ♂ long, conical, sharply narrowed toward the apex. ♀ ovipositor with long narrow valves; the length of a dorsal valve three times more than its greatest height.

Seven species, living in Europe, northern and eastern Asia, and in North America, are known.

- 1 (2). Vertex without a median carina, or with a weak carina. Pronotum with distinct lateral carinae which are well marked for their whole extent; posterior transverse groove extending far in front of the middle of the pronotum; length of posterior part nearly 1.5 times greater than the length of the anterior part of the pronotum. Length of body ♀ 11.8-24.2, ♀ 25.9-39.1; tegmina ♂ 16.7-22.1, ♀ 17.8-29.2 mm. — Nearly all of Europe, the Caucasus, Siberia, northern and eastern Kazakhstan. There are indications of its injurious activity in the Urals; besides that, heavy infestations of cultivated plants and meadows in the Lower Amur Region have been reported *1. M. grossus (L.) — Big swampy 'young mare' grasshopper [Kobylka bolotnaya bol'shaya].

Linnaeus, 1758, Syst. Nat., Ed. X, I:433 (Cryllus Locusta). Brunner-Wattenwyl, 1882-94, Figure 24, Jakobson, 1905:186, 248, Plate IV, Uvarov, 1925c 67, Figure 24; Obenberger, 1926:74, Plate II, Figures 82-83, Miram, 1933:34, Bereshkov, 1937:46, 65; Tarbinski, 1940:29, Tarbinski, 1948:122 — rubripes De Geer, 1773, Mém. hist. Ins., III:477 (Acrydium). — flavipes Gmelin, 1788, Syst. Nat., I, (4) 2088 (Cryllus). — germanicus Stoll, 1813, Représ. Spectres ou Phasmes, etc.:41, Plate 23b, Figure 89 (Cryllus Locusta). — grossum Chopard, 1922:132, 158, Figure 342 (Stethophyma). Biology: Bei-Bienko, 1932b:23, Rubtsov, 1932c:24, Figure 218, Zimin, 1938:40, 65, Plate III, Figure 14, Dovnar-Zapolski, 1940 241, 244, Korzo, 1940 207-216.

- 461 2 (1). Vertex with a distinct median carina. Pronotum with weak lateral carinae only at the anterior margin; posterior transverse groove of the pronotum barely extending in front of the middle of the pronotum, along the middle or barely behind it; length of posterior part of pronotum slightly greater, equal to, or slightly smaller than the length of the anterior part of the pronotum.
- 3 (4). Foveolae in both sexes indistinct, nearly absent, the site of the pits covered only by several separate large punctures. Frontal ridge in the ♀ impressed for all its length. ♂ antennae stouter, fourth and sixth segments of the antennae nearly quadrate, the length of the fifth segment 1.5 times more than its greatest width. Hind tibiae in the ♀ with weakly darkened base. ♂ subgenital plate with arcuately notched dorsal side. Length of body ♂ 25.0-30.2, ♀ 37.0-42.6 mm, tegmina ♂ 23-27, ♀ 31.2-32.0 mm. —Southern part of Siberia from Khakass Autonomous Region to the Maritime Territory, the Kuril Islands *2. M. tsherakii (Ikonn.) —Eastern swampy 'young mare' grasshopper [Kobylka bolotnaya vostochnaya].

Ikonnikov, 1911, *Ezhegodnik Zoologicheskogo muzeya Akademii Nauk* XVI 249 (*Stethophyma*)
 Berezhkov, 1937 46, 66 —tsherskii Tarbinskii, 1948 122

- 4 (3). Foveolae in both sexes distinct, triangular, although small. Frontal ridge in the ♀ impressed only near the median ocellus. ♂ antennae slenderer, third, fourth, and sixth segments of the antennae right-angled, the length of a separate segment being 1.5 times more than its greatest width, length of fifth segment is twice more than its greatest width. Hind tibiae in the ♀ with a black base. The ♂ subgenital plate with a straight dorsal side. Length of body ♂ 28.5-38.0, ♀ 47.5-53.0 mm, tegmina ♂ 27-29, ♀ 35.0-35.6 mm —Japan 3. M. magister Renn

Rehn, 1902, *Proc Acad Nat Sci Phil* 631 Shiraki 1910 2 19

140 Genus Parapleurus Fisch

Fischer 1853 *Orth Eur* 297, 363 Brunner Wattenwyl 1882 83 95 Jakobson 1905 165, 176 216
 Shiraki, 1910 5 12 (partim), Obenberger 1926 62 72 Uvarov 1927a 56 63 Berezhkov, 1937 26 Tar
 binskii 1940 29 165 195 Tarbinska: 1948 115 122 —Mecostethus Kirby 1914 97 112 (partim),
 Chopard, 1922 142 (not Fieber)

Head short. Eyes situated in the middle part of the head. Vertex short. Foveolae very small, indistinct, not reaching the fastigium by far. Antennae rather short, the length of a separate middle segment of the antenna 2-3 times more than its greatest width. Pronotum flat, all three transverse grooves distinct, no lateral carinae, posterior margin projecting. Tegmina and wings well developed. Nearly all the fields of the tegmina with a spurious longitudinal vein, anterior part of median field of the tegmen with a distinct venation, its greatest width distinctly less than the greatest width of the posterior part of this same field, cubital field of tegmen weakly widened, its greatest width equal to or hardly greater than the narrowest part of the apical part of the median field. Tarsus with a large

empodium between the claws, which is equal to the claws or extends beyond their apices. Hind femora with rounded dorsal genicular lobes. Hind tibiae with a small ventral spur on the inner side, which is slightly larger than the dorsal spur on the same side. Metasternum in both sexes with well separated lobes. Tympanal organ on the first abdominal tergite well developed. Subgenital plate in the ♂ long, conical, sharply narrowed toward the apex. ♀ ovipositor with long narrow valves; the length of the dorsal valves 3 times more than the greatest height.

62 Only one species living in Europe, in the Caucasus, in southern Siberia, Kazakhstan, Middle Asia and Asia Minor, and in the Far East, is known.

- 1 (1). Antennae in the ♂ 1.75-2, in the ♀ 1.5 times longer than the head and pronotum taken together. Pronotum with a weak median carina and with 2 black lateral bands. Hind femora very slender [and graceful]; ventral genicular lobes of hind femur rounded

-*1. *P. alliaceus* (Germ.)—Green swampy 'young mare' grasshopper [Kobylka zelenaya bolotnaya].
a (b). Tegmina hardly extending beyond distal ends of hind femora. Smaller. Body of the ♂ 17.0-23.1 mm long, ♀ 24-32 mm long; length of tegmina ♂ 14.8-20.1, ♀ 21.7-28.2 mm long.—South European part of the U.S.S.R., the Caucasus†, besides eastern Transcaucasia; south of Siberia, northern and eastern Kazakhstan; western Europe, Asia Minor, Korea, northern China, Japan. Sometimes injures pastures and hayfields in the lands along the lower Volta and in France . . .
.....*1a. *P. alliaceus alliaceus* (Germ.)

—*alliaceus* Germar, 1817, Fauna Ins. Eur., fasc. XI, tab. 19 (*Gryllus*), Brunner-Wattenwyl, 1882:96, Figure 25, Jakobson, 1905:176, 217, Plate IV; Shiraki, 1910 2, 13, Chopard, 1922:122, 142, Figure 334, (*Mecostethus*), Obenberger, 1926 72, Uvarov, 1927a:64 (partim); Berezhkov, 1937:26, 52, Tarbinskii, 1940:29, 195 (partim); Tarbinskii, 1948:122. —*parapleurus* Hagenbach, 1822, Symb. faunae Ins. Helvet. 134, Figure 21 (*Gryllus*). —*typus* Fischer, 1853, Orth. Eur. 1:364, tab. XVI, Figures 1, 1a, 1b —*fastigiatus* Rehn, 1902, Proc. Acad. Nat. Sci. Phil. 1:629.

Biology. Bei-Bienko, 1932b 14, Predtechenskii, Zhdanov, and Popova, 1935:101; Mishchenko, 1949b:160.

- b (a). Tegmina extending far beyond the distal ends of the hind femora. Larger. Length of body ♂ 22.8-25.1; ♀ 31.0-34.2 mm; tegmina ♂ 23.7-25.1, ♀ 27.8-29.2 mm.—East Transcaucasia, southern Kazakhstan, Middle Asia; northwestern Iran (?).
.....*1b. *P. alliaceus turanicus* Tarb.

Tarbinskii, 1928, Izvestiya Kursov prikladnoi zoologii i fitopatologii, 4:59. —*alliaceus* Uvarov, 1927a-64 (partim); Tarbinskii, 1940 29, 195 (partim).

141. Genus *Ceracris* Walk.

Walker, 1870, Cat. Derm. Salt. Brit. Mus., IV:721, 790, Kirby, 1914:96, 110, Uvarov, 1925a:11. —*Kuthya* I. Bolivar, 1909, Bol. Soc. Esp. Hist. Nat. 1:291, I. Bolivar, 1914, Tarb. Mus. Nac. Cien. Nat. (Ser. Zool.), 20:74, 78. —*Parapleurus* Shiraki, 1910 5, 12 (partim). —*Crea* Caudell, 1921, Proc. Ent. Soc. Wash., XXIII, 2:29.

Type of genus: *Ceracris nigricornis* Walk.

† Cited for Dagestan by Dyukov (Russkoe Entomologicheskoe Obozrenie, 23:141, 1929) under the name of *Oxya fuscovittata* (Marsch.)

Head short. Eyes situated in the middle part of the head. Vertex short. Foveolae indistinct, very small, triangular. Antennae very long; the length of a separate middle segment of the antenna 4 times more than its greatest width. Pronotum with very weak lateral carinae, all 3 transverse grooves distinct; posterior margin projecting. Tegmina and wings well developed; nearly all the fields of the tegmina with a spurious longitudinal vein; cubital field of the tegmina weakly widened, its greatest width equal to or hardly greater than the narrowest part of the apical part of the median field. Tarsus with a large empodium between the claws, equal to the claws or extending beyond their apices. Hind femora with rounded dorsal genicular lobes. Hind tibiae with a small ventral spur on the inner side, slightly larger than the dorsal spur on the same side. Metasternum in both sexes with well-separated lobes. Tympanal organ on the first abdominal tergite well developed. Subgenital plate in the ♂ short, rounded, bluntly conical. ♀ ovipositor with short wide valves; the length of a dorsal valve 1.5 times more than its greatest height.

7 species distributed in northern India, in Burma, Viet Nam, eastern China, and on Taiwan are known.

- 1 (2). ♀ vertex with rounded fastigium. Frontal ridge in the ♂ gradually widened from fastigium to clypeus. Pronotum in both sexes with a rounded anterior margin, which is not notched at the median carina. ♀ tegmina with a rounded apex. Hind femur in the ♀ with reddish ventral aspect. 1. C. nigricornis Walk.
a (b). Smaller. Length of body ♂ 18-20, ♀ 26-30 mm, tegmina ♂ 15-20, ♀ 21-26 mm. —Northern India, Burma, southern China
. 1a. C. nigricornis nigricornis Walk.

Uvarov, 1925a 14 —nigricornis Walker, 1870, Cat Derm Salt Brit Mus., IV 791, Kirby, 1914:110, Figure 89, Uvarov, 1925a 13 (partim). —versicolor Brunner-Wattenwyl, 1893, Ann Mus. Civ. Stor. Nat. Genova, (2), XIII (XXXIII) 126 (Duronia), Kirby, 1914 110, 111

- b (a). Larger. Length of body ♂ 22-24, ♀ 34-37 mm, tegmina ♂ 23, ♀ 28-31 mm. —Viet Nam; China: Kansu, Szechwan, Chekiang, Taiwan. 1b. C. nigricornis laeta (I. Bol.)

Uvarov, 1925a 14, 15 —laeta I. Bolivar, 1914, Trab Mus Nac Cien. Nat., (Ser Zool.), 20 79 (Kuthya). —armillatus Karny, 1915, Supplementa Entom., 4 83 (Parapleurus) —conspicua Caudell, 1921, Proc. Ent. Soc. Wash., XXIII, 2 30 (Gee) —nigricornis Uvarov, 1925a 13 (partim)

- 2 (1). ♀ vertex with pointed triangular fastigium. Frontal ridge in the ♂ widened above the median ocellus. Pronotum in both sexes with a distinct triangular notch near the median carina on the anterior margin. ♀ tegmina with obliquely truncate apex. Hind femur in the ♀ with the ventral aspect not red. Length of body ♂ 18, ♀ 36 mm, tegmina ♂ 26.8, ♀ 30 mm. —China: Hupeh, Kiangsu, Chekiang, Fukiens, Kwangtung (According to Tsai). 2. C. kiangsu Tsai.

Tsai, 1929, Journ. Coll. Agric. Imp. Univ. Tokyo, X, 2 140, Figures 1A-C

142. Genus Anabothrus Mistshenko gen. n.

Head short. Eyes situated in the median part of the head. Vertex short. No foveolae. Antennae filamentous. Pronotum with distinct lateral carinae; posterior margin projecting. Tegmina strongly abbreviated, lateral; anterior margin straight; precostal field in the basal part not widened, gradually narrowing toward the apex; which it reaches; cubital field weakly widened, its greatest width $2/3$ the narrowest part of the apical part of the median field. Wings hardly indicated. Hind femora with rounded 464 dorsal genicular lobes. Hind tibia with a small ventral spur on the inner side, slightly larger than the dorsal spur on the same side. Metasternum with distinctly separated lobes. Tympanal organ on the first abdominal tergite well developed, its lobes making a slit-like aperture. ♀ ovipositor with a sharp tooth near the middle of the dorso-outer margin of the dorsal valves and the ventro-outer margin of the ventral valves.

Only one species from the mountains of Krasnodar Territory, is known.

- 1 (1). ♀ tegmina narrow, reaching the middle of the second abdominal tergite; length of a tegmen 3 times more than its greatest width. Hind femur in the ♀ slender and graceful; length of the femur 5.5 times more than its greatest width. Hindtarsus in the ♀ with a long first segment, its length equal to the length of the other two segments. Mesosternum in the ♀ with a moderately wide space between the lobes; its narrowest part slightly more than its length. ♂ unknown. Length of body ♀ 17.7-17.8, tegmina 3.4-3.6 mm. — South Krasnodar Territory: Pshekish mountain range. (Figure 1035).....*1. A. monticola Mistshenko sp. n.

143. Genus Stenobothrus Fisch.

Fischer, 1853, Orth. Eur. 296, 313, Brunner-Wattenwyl, 1882-84, 100 (partim), Jakobson, 1905, 165, 177, 219 (partim); Shirsaki, 1910, 5, 22 (partim), Kirby, 1914-97, 120 (partim); Chopard, 1922, 124, 143, Obenberger, 1926, 63, 75 (partim), Uvarov 1927a 56, 67; Miram, 1933 20, 23, Berezhkov, 1937, 26, 34, Tarbinskii, 1940 24, 162, 169, Tarbinskii, 1948 112, 115 — Stenobothrus subgen. Stenobothrus Jakobson, 1905, 177, 220. — Stenobothrus subgen. Stenobothrodex Tarbinskii, 1948, 116.

Type of genus: Stenobothrus (s. str.) lineatus (Panz.).

Head short. Eyes situated in the middle of the head. Vertex short. Foveolae long and narrow. ♂ antennae filiform. ♂ pronotum wide; its greatest width between the lateral carinae 1.25-1.5 times more than its narrowest part; lateral carinae distinct; posterior margin projecting. Tegmina and wings usually well developed, rarely abbreviated; anterior margin of tegmina straight; precostal field of tegmina not widened in the basal part, gradually narrowed toward the apex and extending far beyond the middle of the tegmen; cubital field of tegmina weakly widened, sometimes absent. Hind femora with rounded dorsal genicular lobes. Hind tibia with a small ventral spur on the inner side, slightly larger than the dorsal spur on the same side. Metasternum in both sexes with distinctly separated lobes. Tympanal organ on the first abdominal tergite well developed; its lobes plate-like, strongly protecting [or screening, covering,

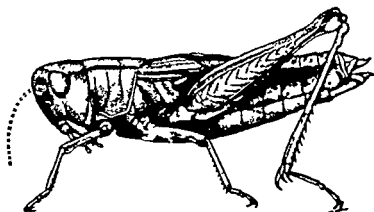
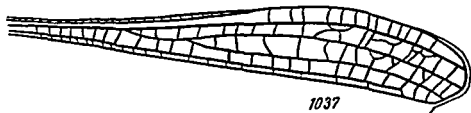
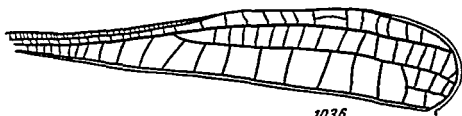


Figure 1035. Anabothrus monticola Mistshenko
gen. et sp. n., ♀, type. (Original)



Figures 1036, 1037. Fore part of right hind wing

1036—Stenobothrus (Stenobothrodes) eurasius
eurasius Zub., 1037—S. (s. str.) fischeri (Ev.).

142. Genus Anobothrus Mistshenko gen. n.

Head short. Eyes situated in the median part of the head. Vertex short. No foveolae. Antennae filamentous. Pronotum with distinct lateral carinae, posterior margin projecting. Tegmina strongly abbreviated, lateral; anterior margin straight; precostal field in the basal part not widened, gradually narrowing toward the apex; which it reaches; cubital field weakly widened, its greatest width $\frac{2}{3}$ the narrowest part of the apical part of the median field. Wings hardly indicated. Hind femora with rounded
464 dorsal genicular lobes. Hind tibia with a small ventral spur on the inner side, slightly larger than the dorsal spur on the same side. Metasternum with distinctly separated lobes. Tympanal organ on the first abdominal tergite well developed, its lobes making a slit-like aperture. ♀ ovipositor with a sharp tooth near the middle of the dorso-outer margin of the dorsal valves and the ventro-outer margin of the ventral valves.

Only one species from the mountains of Krasnodar Territory, is known.

- 1 (1). ♀ tegmina narrow, reaching the middle of the second abdominal tergite; length of a tegmen 3 times more than its greatest width. Hind femur in the ♀ slender and graceful; length of the femur 5.5 times more than its greatest width. Hind tarsus in the ♀ with a long first segment, its length equal to the length of the other two segments. Mesosternum in the ♀ with a moderately wide space between the lobes; its narrowest part slightly more than its length. ♂ unknown. Length of body ♀ 17.7-17.8, tegmina 3.4-3.6 mm. — South Krasnodar Territory: Pshekish mountain range. (Figure 1035) *1. A. monticola Mistshenko sp. n.

143. Genus Stenobothrus Fisch.

Fischer, 1853, *Orth. Eur.*:296, 313, Brunner-Wattenwyl, 1882-84, 100 (partim), Jakobson, 1905:165, 177, 219 (partim); Shiraki, 1910:5, 22 (partim), Kirby, 1914-97, 120 (partim), Chopard, 1922:124, 143, Obenberger, 1926:63, 75 (partim); Uvarov 1927a:56, 67, Miram, 1933:20, 23, Berezhkov, 1937:26, 34, Tarbinskii, 1940:24, 162, 169, Tarbinskii, 1948:112, 115 — Stenobothrus subgen. Stenobothrus Jakobson, 1905:177, 220, — Stenobothrus subgen. Stenobothrox Tarbinskii, 1948:116.

Type of genus: Stenobothrus (s. str.) lineatus (Panz.).

Head short. Eyes situated in the middle of the head. Vertex short. Foveolae long and narrow. ♂ antennae filiform. ♂ pronotum wide; its greatest width between the lateral carinae 1.25-1.5 times more than its narrowest part; lateral carinae distinct; posterior margin projecting. Tegmina and wings usually well developed, rarely abbreviated; anterior margin of tegmina straight; precostal field of tegmina not widened in the basal part, gradually narrowed toward the apex and extending far beyond the middle of the tegmen; cubital field of tegmina weakly widened, sometimes absent. Hind femora with rounded dorsal genicular lobes. Hind tibia with a small ventral spur on the inner side, slightly larger than the dorsal spur on the same side. Metasternum in both sexes with distinctly separated lobes. Tympanal organ on the first abdominal tergite well developed; its lobes plate-like, strongly protecting [or screening, covering,

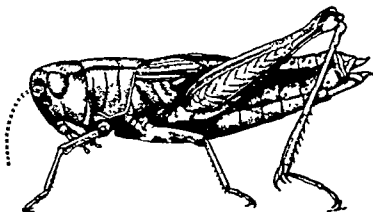
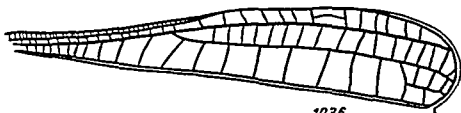
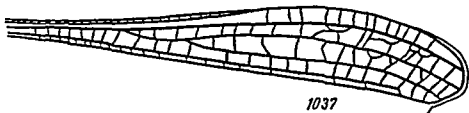


Figure 1035. Anabothrus monticola Mistshenko
gen. et sp. n., ♀, type. (Original)



1036



1037

Figures 1036, 1037. Fore part of right hind wing

1036—Stenobothrus (Stenobothrodes) eurasius
eurasius Zub., 1037—S. (s. str.) fischeri (Ev.).

etc.} the tympanal organ, leaving only a narrow slit-like aperture. ♀ Ovipositor with a sharp tooth near the middle of the dorsal outer margin of the dorsal valves.

465 Around 22 species, distributed in northwestern Africa, Europe, the Caucasus, Asia Minor, Iran, Kazakhstan, the mts. of Middle Asia, Siberia, and Mongolia are known.

Key to Subgenera of Stenobothrus Fisch.

- 1 (2). Wing (the hind one!) with strongly widened median field; medial vein never sends out a branch (Figure 1036) 1. Stenobothrodes Tarb.
- 2 (1). Wing (the hind one!) with a narrow median field; the median vein always sends out 1 or 2 branches (Figure 1037) 2. Stenobothrus Fisch.

1. Subgenus Stenobothrodes Tarb.

Tarbinskii, 1948:116. — Stenobothrus subgen. Stenobothrus Jakobson, 1905:177, 220 (partly).

Type of subgenus: Stenobothrus (Stenobothrodes) eurasius Zub.

Hind wings with strongly widened median field; the medial vein is always unbranched (Figure 1936).

8 species are known, distributed in Europe, in the Caucasus, in northwestern Iran, Kazakhstan, in the mts. of Middle Asia, in Siberia and Mongolia.

- 1 (4). Tegmina with the anterior and posterior cubital veins not fused for their whole extent or not fused at least in the middle part of the tegmen; cubital field distinct in the middle part (Figures 1038, 1039).
- 2 (3). Tegmina wide, gradually widened toward the apex and in the ♀ far from reaching distal ends of hind femurs; apical part of tegmen the widest (Figure 1038). Wings in both sexes wide, darkened, but the median field is transparent and colorless. Hind tibiae red. Length of body ♂ 18.8-21.1, ♀ 25.7-29.2 mm; tegmina ♂ 13.7-18.2, ♀ 14.9-16.1 mm. — Kamenets-Podolsk Region in the Ukrainian SSR (?), southern and central areas of western Europe. Injures cereal grasses, alfalfa, and meadows in north Italy. *1. S.(S.) rubicundus (Germ.) — Rattling grassy grasshopper [Travyanka treskuchaya].

166 Germar, 1817, Reise durch Oesterreich, Tyrol nach Dalmatien und in das Gebiet von Ragusa, II 256 (Cryllus). Jakobson, 1905:178, 223 (Stenobothrus subgen. Stenobothrus). Chopard, 1922:125, 144, Figure 361, Uvarov, 1925c:44, 46, Figure 35. — miniatus Charpentier, 1825, Hor. Ent. 155 (Cryllus). Brunner-Wattenwyl, 1882:101, 108, Figure 28C, Jakobson, 1905, Plate IV, Oberberger, 1926-78, 84, Figures 14², 16⁴, tab. II, Figure 81.

Biology: Bel-Bienko, 1932b:15.

66 3 (2). Tegmina narrow; σ tegmen strongly widened in the middle part and strongly narrowed in the apical third (Figure 1039) but in the φ weakly widened in the middle part hardly extending beyond distal end of the hind femur. Wing narrower, in the σ uniformly black with a black median field, but in the φ colorless, with dark veins. Hind tibiae grayish yellow, sometimes orange. Length of body σ 13.8-16.7, φ 18.9-20.7 mm; tegmina σ 11.3-14.1, φ 12.7-14.6 mm. — Southeast of European part of the U.S.S.R., Kazakhstan, Altai, Buriat-Mongolia *2. S. (S.) carbonarius (Ev.) — Black-winged grassy grasshopper [Travyanka chernokrylaya].

Jakobson, 1905 178, 224 (Stenobothrus subgen. Stenobothrus) Uvarov, 1927a 68, 70 Berezhkov, 1937 36, 53, Tarbinskii, 1948 116. — carbonaria Eversman, 1848, Additamenta quaedam levia ad Fischen de Waldheim Orthoptera Rossica 12, tab A, Figure 6 (Oedipoda)

4 (1). Tegmina with cubital veins fused for their whole extent or only in the middle part of the tegmen, cubital field absent or nearly absent (Figure 1040).

5 (10). Wings in both sexes uniformly darkened, sometimes in the φ light then either all the veins of the wing are black or the greatest width of the radial field of a tegmen is equal to the greatest width of the median field.

6 (7). σ wings wide, the length of the wing 1.25 times more than its greatest width, median field in both sexes with dense venation, the greatest width of a separate median cell $2/3$ to $1/2$ the length of the cell. φ Wings colorless. Hind tibiae yellowish. Length of body σ 15.4-18.1, φ 17.8-21.2 mm, tegmina σ 13.3-15.1, φ 10.4-13.7 mm. — Altai, northwestern Mongolia. *3. S. (S.) nevskii Zub. — Altai grassy grasshopper [Travyanka altaiskaya].

— nevskii Zubovskii, 1899, Trudy Russkogo Entomologicheskogo obshchestva, XXXIV 9 — newskyi Jakobson, 1905:178, 223 Berezhkov, 1937 36, 54

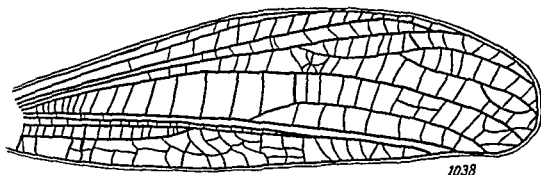
7 (6). Wings with distinct venation in the median field, greatest width of a separate median cell is equal to or 1.25-1.5 times greater than the length of the cell.

8 (9). Wings in both sexes darkened. Hind femora with black distal ends Hind tibia with black bases. Length of body σ 17.5-19.4, φ 27.7-28.6 mm, tegmina σ 12.7-13.7, φ 16.1-16.8 mm. — Transcaucasia, northwestern Iran *4. S. (S.) werneri Ad. — Transcaucasian grassy grasshopper [Travyanka zakavkazskaya].

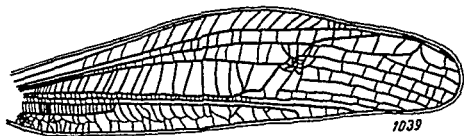
Adelung 1907, Trudy Russkogo Entomologicheskogo obshchestva, XXXVIII 43 Plate 1 Figure 1 Ikonnikov, 1911, Russkoe entomologicheskoe obozrenie XI 100, Tarbinskii, 1940 24 169 170 Figures 144, 151, 152

9 (8). Wings in the σ coal-black but light in the φ , with black venation. Hind femur with weakly darkened distal end. Hind tibia with light base Length of body σ 13.5-15.6, φ 15.7-23.2 mm, tegmina σ 11.5-12.7, φ 9.8-12.7 mm. — Armenia . . . *5. S. (S.) sviridenkoi Rme.

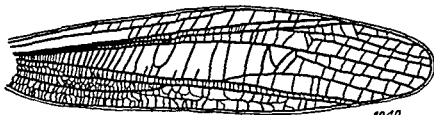
— wernerl sviridenkoi Ramme 1930, Mutt Zool Mus Berlin XVI 394



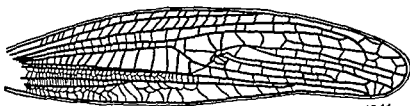
1038



1039



1040



1041

Figures 1038-1041. Right tegmen ♂. (Original)

1038—Stenobothrus (Stenobothrodes) rubicundus (Germ.);
 1039—S. (S.) carbonarius (Ev.), 1040—S. (S.) eurasius
eurasius (Ev.); 1041—S. (s. str.) fischeri (Ev.).

- 467 10 (5). Wings in both sexes always light, darkened only at the apices or in the apical halves, nearly all the transverse and many of the longitudinal veins in the ♀ wing are light. Tegmina in the ♀ with a narrow radial field; its greatest width is considerably less than the greatest width of the median field.
- 11 (12). Wings in both sexes with a wide median field; its greatest width twice more than the greatest width of the radial field. Length of body ♂ 21.4-22.6, ♀ 21.8-26.2 mm; tegmina ♂ 11.9-12.6, ♀ 12.8-16.1 mm. —Caucasus, Transcaucasia. *6. S. (S.) caucasicus Dov.-Zap.

Dovnar Zapol'skii, 1927, *Izvestiya Severo-Kavkazskogo kraevoi stantsii zashchity rastenii*, 3 196, Figures 1a, 2a, Tarbinskii, 1940 24

- 12 (11). Wings in both sexes with a narrower median field, its greatest width equal to or 1.25-1.5 times more than the greatest width of the radial field.
- 13 (14). Wings wide with dense venation, length of a wing 1.5-1.6 times more than its greatest width, median field with a regular venation *7. S. (S.) eurasius Zub. —Eurasian grassy grasshopper [*Travyanka evraziyskaya*].
- a (b). Wings smoky on the apex, the greatest width of the median field distinctly more than the greatest width of the radial field. Hind tibiae in both sexes red or orange, sometimes in the ♀ yellowish. Length of body ♂ 16.7-18.7, ♀ 19.6-23.2 mm, tegmina ♂ 11.3-13.7, ♀ 13.8-15.7 mm. —Kazakhstan, south regions of Siberia east to Transbaikal mts. of Kirghizia. Injures cereal grasses and meadows in the mts. of Kirghizia *7a. S. (S.) eurasius eurasius Zub.

—eurasius Zubovskii, 1898, *Ezhegodnik Zoologicheskogo muzeya Akademii Nauk*, III 75, 81
Jakobson 1905 178, 222 (*Stenobothrus* subgen. *Stenobothrus*) (partim), Obenberger, 1926 78 tab II, Figure 101 Uvarov, 1927a 68, 69 Figure 51 (partim), Berezhkov, 1937 36, 54, Figure 30 (partim), Tarbinskii, 1948 116

Biology Rubtsov, 1932c 16, 17, Predtechenskiy Zhdanov and Popova, 1935 129, Zimin 1938 33, 45, Plate I, Figure 2, Mishchenko 1949b 155

- b (a). Wings usually colorless on the apex, the greatest width of the median field nearly equals the greatest width of the radial field. Hind tibiae in the ♂ yellowish, ♀ grayish. Length of body ♂ 16.9-18.5, ♀ 19.7-23.1 mm, tegmina ♂ 11.7-13.4, ♀ 13.1-16.5 mm. —South regions of the European part of the U. S. S. R. *7b S. (S.) eurasius hyalosuperficies Vor.

Tarbinskii, 1948 116 —eurasius Jakobson 1905 178, 222 (*Stenobothrus* subgen. *Stenobothrus*, (partim), Uvarov, 1927a 68 69 (partim), Berezhkov 1937 36 54 (partim). —eurasius var. hyalosuperficies Vorontsovskii, 1928, *Izvestiya Orenburgskoi stantsii zashchity rastenii*, (1927), 1:7.

- 14 (13). Wings narrow, with sparse venation, length of the wing nearly twice more than its greatest width, median field with irregular venation. Wings in the ♂ smoky, but in the ♀ they are transparent. Hind femora in both sexes with weakly darkened distal ends. Hind tibiae in both sexes red, with a light base. Length of body ♂ 15.4-15.7,

♀ 20.5-23.3 mm; tegmina ♂ 11.5-12.1, ♀♀ 12.3-13.4 mm. — Tadzhikistan, Petra I range: valley of the Gursytash and of the Kuli-ka rivers. (Type from the valley of the Gursytash River).
 *8. S. (S.) tadzhicus Mistshenko sp. n.

2. Subgenus Stenobothrus Fisch.

Jakobson, 1905:177, 220 (partim). — Stenobothrus Fischer, 1853, Orth. Eur. 296, 313 (partim).
 Type of subgenus: Stenobothrus (s. str.) lineatus (Panz.).

469 Wings with a narrow median field; medial vein always branched.

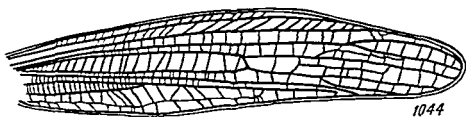
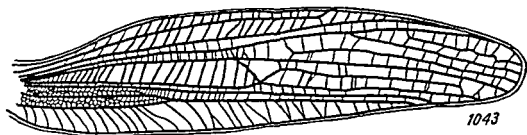
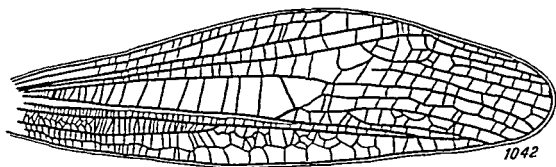
Around 14 species are known, distributed in northwestern Africa, in Europe, the Caucasus, Asia Minor, Kazakhstan, in the mts. of Middle Asia, in Siberia and Mongolia.

- 1 (16). Tegmina long, in the ♂ they always reach the tip of the abdomen, but in the ♀ they extend beyond the middle of the hind femora.
- 2 (9). Tegmina in both sexes with a distinctly S-shaped radial vein, besides that in the ♀ the subcostal vein is always likewise strongly curved (Figure 1041).
- 3 (4). ♀ tegmina with a narrow radial field; its greatest width is equal to the greatest width of the subcostal field. ♂ unknown. Length of the body ♀ 15, tegmina 10.2 mm. — Bulgaria: Rodopy (According to Ramme). 1. S. (s. str.) bulgaricus Rme.

Ramme, 1933, Mitt. Zool. Mus. Berlin, XVIII 431, tab. XII, Figure 10.

- 4 (3). Tegmina in both sexes with a wide radial field; its width nearly twice more than the greatest width of the subcostal field (Figure 1041).
- 5 (6). Tegmina in both sexes with the cubital veins fused for their whole extent (Figure 1042). Wings in the ♂ distinctly darkened, but in the ♀ weakly darkened in the apical part. Hind tibiae in the ♂ orange, ♀ yellowish. Length of body ♂ 15.7-19.2, ♀ 20.8-25.3 mm; tegmina ♂ 11.6-15.1, ♀ 13.8-18.3 mm. — European part of the U. S. S. R. (except the north), the Caucasus, Kazakhstan, south Siberia; western Europe, northern Mongolia. Known from Siberia and the mountains of western Europe as a second-degree pest. *2. S. (s. str.) lineatus (Panz.). — Thickheaded or striped grassy grasshopper [Travyanka tolstogolovaya ili polosataya]

Panzer, 1796, Fauna Insec. Germ., fasc. 33, Figure 9 (Gryllus), Brunner-Wattenwyl, 1882:101, 104, Jakobson, 1905:178, 221, Plate IV, Chopard, 1922, 125, 144, Figures 310, 344, 352, 354, 356, 358, Oberberger, 1926 79, 80, Figures 14¹, 16¹, 18², tab. II, Figure 98, Uvarov, 1927a 68, 69, Figure 50, Miram, 1933 23, Berezikov, 1937:36, 53, Figure 15, Tarbinskii, 1940 24, 169, 170, 222, Tarbinskii, 1948:116. — tenellus Stoll, 1813, Représ. Spectres ou Phasm., etc. 27, tab. 12b, Figure 45 (Gryllus Locusta). — megacephalus Seidl, 1837, Weitenweber's Beitr. gesammelt. Naturk. u. Heilwiss., 1.219 (Acridium). — lineatus var. punctatifrons Ivanov, 1887, Trudy Obshchestva Ispytatelei prirody Kharkovskogo universiteta, XXI 339. — lineatus var. violaceus Shugurov, 1907, Trudy Russkogo entomologicheskogo Obshchestva, XXXVIII 117. — lineatus f. interposita and myrtae Fruhstorfer, 1921, Arch. Naturg., LXXXVII, Abt. A, S 108.



Figures 1042-1044 Right tegmen ♂ (Original)

1042—Stenobothrus (s str) lineatus (Panz), 1043—S. (s str)
nigrogeniculatus Kr., 1044—S. (s str) miramae Dirsh

Biology: Bel-Bienko, 1928a:182, Bel-Bienko, 1932b:15, Zimin, 1938:32, 45, Plate I, Figure 3, Dovnar-Zapol'skii, 1940:222.

- 6 (5). Tegmina in both sexes either with distinctly separate cubital veins (Figure 1043) or they are fused together only here and there (Figure 1041).
- 7 (8). Pronotum in both sexes with very weakly arcuately concave lateral carinae. σ tegmina with cubital veins fused here and there, the cubital field practically absent (Figure 1041). Length of body σ 15.7-21.2, φ 20.6-26.1 mm; tegmina σ 11.8-15.1, φ 13.7-16.3 mm. — South regions of the European part of the U. S. S. R., northern Caucasus, Kazakhstan, Middle Asia, Siberia; western Europe, Asia Minor, Mongolia; in some regions of north Kazakhstan it has been reported as a pest to cereal grasses, and in north Italy it injures cereal grasses, alfalfa, and meadows. *3. S. (s. str.) fischeri (Ev.) — Fischer's grassy grasshopper [Travyanka Fischera].

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Everman, 1848, Additamenta quaedam levia ad Fischeri de Waldheim Orthoptera Romica:11, tab. A, Figure 5 (Oedipoda), Jakobson, 1905:178, 222 (partim); Chopard, 1922:125, 144, Figure 360, Oberberger, 1925:82, Figure 163; Uvarov, 1927a:68, 69, Figure 48 (partim); Berezhkov, 1937:36, 54, Tarbinskii, 1940:24, 221, Figure 172 (partim); Tarbinskii, 1948:116. — fischeri var. prasina Vorontsovskii, 1928, Izvestiya Orenburgskoi nauchnoi zapovednitsy rastenii, (1927), 1:7.

Biology: Bel-Bienko, 1932b:15, Predtechenskii, Zhdanov, and Popova, 1935:107; Zimin, 1938:33, 43, Plate I, Figure 5, Mikhchenko, 1947b:155.

- 8 (7). Pronotum in both sexes in the anterior part with distinctly obtuse-angularly impressed lateral carinae. σ tegmina with the cubital veins distinctly separated from each other for their whole extent, the cubital field distinct (Figure 1043). Length of body σ 17.8-18.0, φ 22.8-28.0 mm; tegmina σ 12.7-13.0, φ 13.3-16.0 mm. — Transcaucasia; southeastern part of western Europe, Asia Minor

. *4. S. (s. str.) nigrogeniculatus Kr.

Krauss, 1878, Sitzb. k. Akad. Wissensch. Wien. Math.-nat. Kl., Abt. I, LXXVII 447, tab. 1, Figures 4, 4A-C; Brunner-Wattenwyl, 1882:101, 107; Jakobson, 1905, Plate IV; Uvarov, 1934, Fos, X-80 — fischeri Jakobson, 1905:178, 222 (partim), Uvarov, 1927a:68, 69 (partim), Tarbinskii, 1940:24 (partim).

- 471 9 (2). Tegmina in both sexes with a straight radial vein (Figure 1044), sometimes in the φ it is hardly distinctly curved, then the subcostal vein is straight.
- 10 (15). Tegmina in both sexes with the cubital veins distinctly separated for their whole extent (Figure 1044).
- 11 (14). φ antennae slender and long, extending beyond the posterior margin of the pronotum; the length of a separate median segment 1.50-2.25 times more than its greatest width. σ tegmina with a wide costal field, its greatest width distinctly more than the greatest width of the precostal field (Figure 1044). Hind tibiae in the σ with a black or a dark base.
- 12 (13). φ pronotum with weakly arcuately concave (in the anterior part) lateral carinae. Lobes of the last abdominal tergite in the σ weakly separated (Figure 1045). Length of body σ 14.2-19.0, φ 22.5-23.4 mm, tegmina σ 11.3-12.4, φ 13.1-14.5 mm. — The Crimea,

southeastern part of the European part of the U. S. S. R., western Kazakhstan *5. S. (s. str.) miramae Dirsh. —Miram's grassy grasshopper [Travyanka Miram].

Dirsh, 1931, Bol. Soc. Esp. Hist. Nat., XXXI 711, Figures 1, 3

- 13(12). Pronotum of the ♀ with distinctly triangularly concave (in the anterior part) lateral carinae. Lobes of last tergite of the abdomen in the ♂ widely separated (Figure 1046). Length of body ♂ 16.5-19.0, ♀ 23.0-25.7, tegmina ♂ 11.4-13.0, ♀ 14.0-14.7 mm. —Armema, Nakhichevan A. S. S. R.; Asia Minor *6. S. (s. str.) zubovskii I. Bol.

—zubowskyi I. Bolivar, 1899, Ann. Soc. Ent. Belg., XLIII 588, Jakobson, 1905 178, 221 Tarbinskii, 1940.24

- 14(11). ♀ antennae short and stout, hardly reaching the posterior margin of the pronotum, length of a separate median segment of the antenna equal to or hardly more than its greatest width, ♂ tegmina with narrower costal field, its greatest width is equal to or distinctly less than the greatest width of the precostal field (Figure 1047). Hind tibiae in the ♂ with a light base. Length of body ♂ 10.8-15.2, ♀ 14.7-20.1 mm; tegmina ♂ 7.8-9.2, ♀ 8.8-12.2 mm. —Southern regions of the European part of the U. S. S. R., western Europe, Asia Minor. *7. S. (s. str.) stigmaticus (Ramb.)

Rambur, 1839, Faune entom. Andal., II 93 (Gryllus) Brunner-Wattenwyl 1882 101, 106, Figure 288 Jakobson, 1905 178, 220, Plate IV, Chopard, 1922 126, 144 Figure 362, Uvarov, 1925c-44, Figure 31 Obenberger, 1926 81, Figures 15¹, 16¹⁹, tab. II, Figure 90, Tarbinskii, 1948 116 —parvulus and parvulum Herrich-Schäffer, 1840, Nomencl. ent., II 10, 11 (Acridium). —ramburi Fieber in: Kelch, 1852, Grundlage zur Kenntniss der Orthopteren Oberschlesiens 5 (Chorthippus).

Biology Zubovskii, 1897, Izhegodnik Zoologicheskogo muzeya Akademii Nauk, II 374

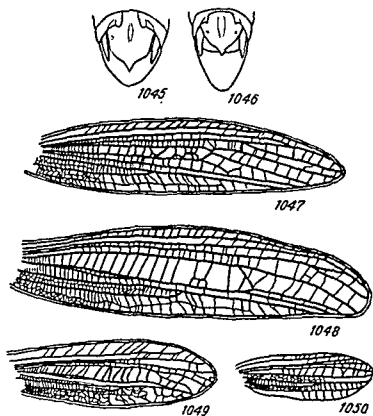
- 15(10). Tegmina in both sexes with cubital veins distinctly separated only near the base, farther on they are fused together (Figure 1048).

*8. S. (s. str.) nigromaculatus (H. -Sch.) —Stained grassy grasshopper [Travyanka pyatnistaya].

- a (d). ♂ tegmina with distinctly widened subcostal field, its greatest width distinctly more than the greatest width of the costal field, median field in both sexes wide, its greatest width near the apex equal to or distinctly greater than the distance from the median field to the posterior margin of the tegmen, taken along the same transverse line (Figure 1048).

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- b (c). Antennae shorter, in the ♂ far from reaching the middle of the body, in the ♀ not reaching the posterior margin of the pronotum. Hind femora with weakly darkened distal ends. Hind tibiae orange, yellow or grayish. ♂ abdomen dorsally with a yellow or an orange tip. Length of body ♂ 12.8-18.1, ♀ 17.7-24.2 mm, tegmina ♂ 8.9-13.0, ♀ 9.8-16.0 mm. —Southern regions of the European part of the U. S. S. R., the Caucasus, Kazakhstan, mts. of Kirghizia, southern Siberia; western Europe, Asia Minor. Reported a pest of cereal grasses in the Urals. *8a. S. (s. str.) nigromaculatus nigromaculatus (H. -Sch.)



Figures 1045-1050
(Original)

1045—Stenobothrus (s. str.) miramae Dirsh, ♂, tip of abdomen from above; 1046—S. (s. str.) zubovskii I. Bol., ♂, tip of abdomen from above; 1047—S. (s. str.) stigmatiscus (Ramb.), ♂, right tegmen; 1048—S. (s. str.) nigromaculatus nigromaculatus (H.-Sch.), ♂, right tegmen; 1049—S. (s. str.) kirgizorum Ikonn., ♂, right tegmen; 1050—S. (s. str.) crassipes (Charp.), ♂, right tegmen.

—nigromaculatum Herrich Schiffer, 1840, Nomencl. ent., 11:10, 11 (Acridium) —luteicornis Fischer-Waldheim, 1846 330 (Oedipoda) —stigmaticum Brisout-Barneville, 1848, Ann. Soc. Ent. France, (2) VI:416 (Acridium) (not Rambur) —nigromaculatus Brunner-Wattenwyl, 1882 101, 105, Figure 28A, Jakobson 1905 178, 221, Chopard, 1922:125, 144, Figures 349, 459 Obenberger, 1926 79, Figures 131, 162, tab. II, Figures 113, 114, Uvarov, 1927a:68, 69, Figure 49, Berezhkov, 1937 36, 53, Tarbinskii, 1940 24, 169, 222 Tarbinskii, 1948 116 —insolitus Tarbinskii, 1928, Konowia, VII 243
Biology: Bei-Bienko, 1928a 182, 183, Bei-Bienko, 1932b 15, Rubtsov, 1932c:16, 17, Predtechenski Zhdanov, and Popova, 1935 107, Zimin, 1938 32, 44, Plate I, Figure 6

- 473 c (b). Antenna very long, in the σ nearly reaching the middle of the body, in the φ reaching the posterior margin of the pronotum. Hind femur with black distal end. Hind tibia red. σ abdomen dorsally with a red tip. Length of the σ 19, φ 28 mm, tegmina σ 13, φ 15 mm. —Northern Italy, Yugoslavia, Austria, Hungary
.....8b. S. (s. str.) nigromaculatus istrianus Kr.

—nigromaculatus var istriana Krauss, 1878, Sitzb. k. Akad. Wissensch. Wien, Math.-nat. Kl., Abt. I, LXXVIII 479, tab. I, Figures 5, 5a b Jakobson, 1905 221 Chopard, 1922 144

- d (a). σ tegmina with weakly widened subcostal field, its greatest width is equal to the greatest width of the costal field, the median field in both sexes narrow, its greatest width at the apex considerably less than the distance from the median field to the posterior margin of the tegmen taken on the same transverse line. Length of body in the σ 14.8, φ 20 mm, tegmina σ 10.5, φ 11.2 mm. —Transcaucasia: Georgia (Ramme).
.....*8c. S. (s. str.) nigromaculatus transcaucasicus Rme.

Ramme, 1933, Mitt. Zool. Mus. Berlin, XVIII 430, tab. XII, Figure 9 Tarbinskii, 1940 24

- 16 (1). Tegmina in both sexes strongly abbreviated, not reaching the middle of the hind femora.
17 (18). σ pronotum with a narrow posterior part, the length of the posterior part is slightly more than its greatest width between the lateral carinae. Tegmina in both sexes with the cubital veins distinctly separated for all their length or only in the basal part (Figure 1049). Length of body σ 12.5–13, φ 18.8 mm, tegmina σ 5.7–5.8, φ 4.5 mm —Southeastern Kazakhstan: Dzungarian Ala Tau
.....*9. S. (s. str.) kirgizorum Ikonn.

Ikonnikov 1911, Russkoe entomologicheskoe obozrenie, XI 348 Bei-Bienko 1948, Vestnik AN Kazakhskoi SSR, 8(41) 40 —kirgizorum Uvarov, 1927a 68, 70

- 18 (17). σ pronotum with wider posterior part, the length of the posterior part less than its greatest width between the lateral carinae. Tegmina in both sexes with the cubital veins fused for all their length (Figure 1050).
19 (20). σ vertex with obtuse-angular fastigium. Tegmina in both sexes longer, in the σ they extend beyond the fifth in the φ beyond the second abdominal tergite, the length of the tegmina in the σ is 5 times, in the φ 4 times more than the greatest width. Hind femora in

both sexes with dark distal ends. Length of body ♂ 12.4-14.0, ♀ 16-19 mm; tegmina ♂ 6.0-6.8, ♀ 4.8-5.0 mm. -Southeastern Kazakhstan: Ketmen range . . *10. S. (s. str.) cobresianus B. -Blenko.

Bel-Bienko, 1949, Doklady AN SSSR (novaya seriya), LXIV, 2:268.

- 20(19). ♂ vertex with acute-angular fastigium. Tegmina in both sexes more abbreviated, in the ♂ they extend beyond the third, in the ♀ beyond the first abdominal tergite; the length of a tegmen in the ♂ 4 times in the ♀ 3 times more than its greatest width. Hind femur with the distal end not darkened. Length of body ♂ 10.8-12.6, ♀ 13.6-16.2 mm; tegmina ♂ 3.4-4.0, ♀ 2.6-3.0 mm. -Transcarpathian Region of Ukraine; Czechoslovakia, Austria, Yugoslavia, Hungary. *11. S. (s. str.) crassipes (Charp.)

Charpentier, 1825, Hor. Ent.: 174 (Gryllus); Brunner-Wattenwyl, 1882: 101, 103; Jakobson, 1905: 177, 220; Obenberger, 1926: 81.

144. Genus Omocestus I. Bol.

I. Bolivar, 1878-1879, Anal. Soc. Esp., VII:427; Chopard, 1922:124, 146; Uvarov, 1927a:56, 70, Miram, 1933:20, 24, Berezikov, 1937:26, 37, Tarbinskii, 1940:24, 162, 171 (partim); Tarbinskii, 1948: 112, 116 (partim). -Stenobothrus Brunner-Wattenwyl, 1882:84, 100 (partim), Jakobson, 1905:165, 177, 219 (partim). -Stenobothrus subgen. Omocestus Jakobson, 1905:179, 224; Obenberger, 1926:63. Type of genus: Omocestus viridulus (L.).

Head short. Eyes situated in the middle of the head. Vertex short. Foveolae long and narrow. Antennae in both sexes filiform. ♂ pronotum narrow in the anterior part; its greatest width between the lateral carinae 2-3 times more than its narrowest part; lateral carinae distinct; posterior margin projecting. Tegmina and wings usually well developed, rarely abbreviated, the anterior margin of the tegmina straight; precostal field of the tegmina not widened in the basal part, gradually narrowed toward the apex and extending far beyond the middle of the tegmina; the cubital field of the tegmina weakly widened, sometimes absent. Hind femora with rounded dorsal genicular lobes. Hind tibiae with a small ventral spur on the inner side, slightly larger than the dorsal spur on the same side. Metasternum in both sexes with the lobes distinctly separated. Tympanal organ on the first abdominal tergite well developed; its lobes strongly covering [or screening, protecting, etc.] the tympanal organ, leaving only a narrow slit-like opening. ♀ ovipositor with a rounded preapical notch on the dorso-outer margin of the dorsal valves.

Around 28 species are known, being distributed in northwestern Africa, in Europe, the Caucasus, Hither Asia, Iran, Kazakhstan, Middle Asia, Siberia, Mongolia, Korea, and China.

1(16). Tegmina and wings well developed.

2(3). Eyes in both sexes small, vertical diameter of the eye in the ♂ slightly larger, but in the ♀ equal to the subocular groove. Tegmina in the ♂ with a wide radial field; its width near the apex of the median field is considerably greater than the greatest width of the subcostal field. ♀ ovipositor with long valves; the preapical notch of the ventro-outer margin of the ventral valves 25-1/2 the

distance from the posterior margin of the notch to the base of the valve (Figure 1051). Length of body ♂ 12.6-15.2, ♀ 19.7-24.3 mm, tegmina ♂ 12.7-14.2, ♀ 15.8-18.2. —Nearly all the European part of the U.S.S.R., Caucasus, Kazakhstan, mts. of Kirghizia, Siberia; western Europe, Mongolia
 #1. O. viridulus (L.) —Green grassy grasshopper [Travyanka zelenaya].

Linnaeus, 1758, Syst. Nat., Ed. X, I 433 (Gryllus Locusta) Brunner-Wattenwyl, 1882 102, 111, Figure 28E (Stenobothrus) Jakobson, 1905:179, 224, plate IV (Stenobothrus subgen. Omocestus), Chopard, 1922 126, 148, Figures 365, 366, Obenberger, 1926 80, Figures 149, 162⁰, tab. II, Figures 88, 92, 96, 97, 98 (Stenobothrus subgen. Omocestus), Uvarov, 1927a:71, figures 52, 53, Miram, 1933 24, Figure 27, Berezhkov, 1937 37, 54, 79, Tarbinskii, 1940 24, 171, Tarbinskii, 1948 116 —rufomarginatus De Geer, 1773, Mem. Ins., III 481 (Acrydium). —nigroterminatum De Geer, 1773, Mem. Ins., III 481 (Acrydium). —rubicundus Gmelin, 1788, Syst. Nat., I(4) 2070 (Gryllus). —dimidiatus Tumbler, 1815, Mem. Acad. Sci. St.-Petersb., V 250 (Gryllus) —marginalis Tumbler, 1815, ibidem V 252 (Gryllus). —aprica Stephens, 1835 Illustr. Brit. Ent., VI 24 (Locusta). —viridulus var. rufo-violaceus and unicolor Schirmer, 1913, Ent. Rundsch., XXX 87.
 Biology Zimin 1938 36 46, Plate IV, Figure 22

- 175 3 (2). Eyes in both sexes large, the vertical diameter of the eye in the ♂ is 1.75-2.00, in the ♀ 1.25-1.50 times greater than the subocular groove. ♂ tegmina with a narrow radial field, its width near the apex of the median field is nearly equal to, equal to, or slightly less than the greatest width of the subcostal field. ♀ ovipositor with short valves, the notch of the ventro-outer margin of the ventral valves is equal or nearly equal to the distance from the posterior margin of the notch to the base of the valve (Figure 1052).
- 4(11). Frontal ridge in both sexes depressed only under the median ocellus. Foveolae in the ♂ usually widely separated, sometimes nearly contiguous, then the ventral aspect of the hind femurs is red.
- 5(10). Foveolae in the ♀ long, the length of a pit is 2.5-3.0 times more than its greatest width. Pronotum in both sexes with arcuately concave lateral carinae in the anterior part. ♂ tegmina with a narrow median field, its greatest width equal to or 1.25-1.50 times more than the greatest width of the cubital field.
- 6 (7). Foveolae in the ♂ nearly contiguous ♀ antennae long, extending beyond the posterior margin of the pronotum. Hind femur in both sexes with a red ventral aspect. Length of body ♂ 17.8-18.1, ♀ 22.5-26.1 mm, tegmina ♂ 12.5-15.2, ♀ 16-17.1 mm. —Southern and southeastern Kazakhstan, Uzbekistan, in the tugais [i.e., flood-plain forests] #2. O. heymonsi (Rme.) —Tugai grassy grasshopper [Travyanka tugainaya].

Ramme, 1926, Deutsche Ent. Zeit., 1926 276 (Stauroderus) Uvarov, 1927a:71, 72, Figures 54 55 —tarbinskii Uvarov, 1926, Eos, II 332

- 7 (6). Foveolae in the ♂ widely separated ♀ antennae short, not reaching or only reaching the posterior margin of the pronotum. Hind femur in both sexes with yellow, brown, or reddish-brown ventral aspect.

- 8 (9). ♂ vertex with acute-angular fastigium. Maxillary and labial palpi in both sexes with light apical segments, and the remaining segments black, with a white apical ring. Length of body ♂ 11.7-17.2, ♀ 17.7-10.1 mm; tegmina ♂ 10.8-15.3, ♀ 16.7-19.2 mm. —Nearly all the European part of the U. S. S. R., northern Caucasus, Kazakhstan, southern part of Siberia; northwestern Africa, western Europe, Asia Minor. In Denmark it was a pest of table turnips *3. O. ventralis (Zett.) — Red-legged grassy grasshopper [Travyanka krasnonogaya].

Zetterstedt, 1821, Orth. Suec. 89 (Gryllus), Chopard, 1922:126, 147, Figures 355, 367, 370, Uvarov, 1927a:71, 72, Figure 56, Tarbinskii, 1940:24; Tarbinskii, 1948:116. —rufipes Zetterstedt, 1821, Orth. Suec. 90 (Gryllus), Brunner-Wattenwyl, 1882:102, 103 (Stenobothrus), Jakobson, 1905:179, 225, Plate IV (Stenobothrus subgen. Omocestus), Obenberger, 1926 81, Figure 167, tab. II, Figures 91, 100 (Stenobothrus subgen. Omocestus), —cruentata Brulle, 1832, Insec. Exp. Sci. Moree, III:93, tab. XXX, Figure 3 (Oedipoda), —geniculata Brulle, 1832, ibidem, III 94, tab. XXX, Figure 4 (Oedipoda), —minulata Stephens, 1835, Illust. Brit. Ent., VI 25 (Locusta) (not Charpentier). —viridulum Wesmael, 1838, Bull. Acad. R. Bruxelles, V:595, tab., Figures 3a-b (Acridium) (not Linnaeus) —abdominale Herrich-Schaeffer, 1840, Nomencl. Ent. II:11 (Acridium). —settatedit Fleber in: Kelch, 1852, Grundlage zur Kenntniss der Orthopteren Oberschlesiens, 2 (Chorthippus).

Biology: Bel-Blenko, 1932b:15.

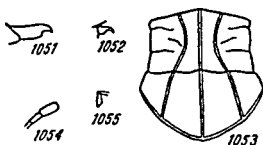
- 476 9 (8). ♂ vertex with right-angled or obtuse-angled fastigium. Maxillary and labial palpi in both sexes solidly light. *4. O. haemorrhoidalis (Charp.) — Red-bellied grassy grasshopper [Travyanka krasnobryukhaya].
- a (b). ♀ pronotum with short posterior part; posterior part is considerably shorter than its greatest width between the lateral carinae. ♂ tegmina with dense venation in the subcostal field. ♂ Wings with dense venation. Length of body ♂ 10.8-14.2, ♀ 15.7-19.2 mm; tegmina ♂ 9.8-11.2, ♀ 10.7 to 16.2 mm. —European part of the U. S. S. R., except the extreme north, nearly all of the Caucasus, Kazakhstan, mts. of Middle Asia, Siberia; western Europe, Mongolia, Korea. Reported as a pest of cereal grasses in the mts. of Kirghizia *4a. O. haemorrhoidalis haemorrhoidalis (Charp.)

haemorrhoidalis Charpentier, 1825, Hor. Ent.:165 (Gryllus), Brunner-Wattenwyl, 1882:102, 114 (Stenobothrus) (partly), Jakobson, 1905 179, 225, Plate V (Stenobothrus subgen. Omocestus), Chopard, 1922:126, 146, Figure 368, Obenberger, 1926 85, Figures 132, 161¹³ (Stenobothrus subgen. Omocestus), Uvarov, 1927a:71, 72, Figure 35; Miram, 1933 24, Figure 28 Berezikov, 1937:36, 55, 78, Tarbinskii, 1940 25, 171, 224, Figures 107, 108, 1431, 145; Tarbinskii, 1948 116, Figures 127, 142A. —haemorrhoidalis var. nebulosa Brunner-Wattenwyl, 1882:115 (Stenobothrus). —montivagus Azam, 1908, Bull. Soc. Ent. France 9. —haemorrhoidalis var. obscurus and viridis Schirmer, 1913, Ent. Rundsch., XXX:88. —haemorrhoidalis var. robustior Zacher, 1917, Geradfl. Deutsch.: 121. —haemorrhoidalis var. hyaloperficatus Vorontsovskii, 1928, Izvestiya Orenburgskoi stantsii zashchity rastenii, (1927), 1:8.

Biology: Bel-Blenko, 1932b:15, Rubtsov, 1932c:18, Zimin, 1938, 36, 46, Plate IV, Figure 23, Mitchenko, 1949b:155.

- b (a). ♀ pronotum with a long posterior part; the length of the posterior part is equal to its greatest width between the lateral carinae (Figure 1053). ♂ tegmina with sparse venation in the

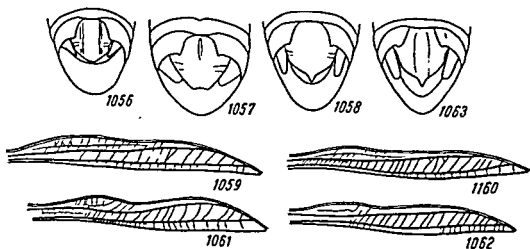
- subcostal field. σ Wings with sparse venation. Length of body σ 14.2-14.7, φ 19.7 mm; tegmina σ 10.2-10.7, φ 14.1 mm. — Northern Caucasus Salg.
- 10 (5). ...*4b. *O. haemorrhoidalis ciscaucasicus* Mistshenko subsp. n. Foveolae in the φ short and wide, the length of a pit is twice more than its greatest width. Pronotum in both sexes with concave lateral carinae in the anterior part. σ tegmina with a wide median field, its greatest width 2-2.5 times more than the greatest width of the cubital field. Length of body σ 10.7-13.2, φ 13.6-17.3 mm, tegmina σ 7.8-9.2, φ 8.4-12.2 mm. — Southern regions of the European part of the U. S. S. R., the Caucasus, Kazakhstan, southern part of Siberia, western Europe, Asia Minor, Syria (?). In northern Italy it injures cereal grasses, alfalfa, and meadows *5. *O. petraeus* (Bris.) — Small grassy grasshopper (Travyanka malaya).
- Brunner-Wattenwyl, 1882 102, 115 (*Stenobothrus*), Jakobson, 1905 177, 225 (*Stenobothrus* subgen. *Omocestus*) (partim), Chopard, 1922 126, 147, Figure 369, Obenberger, 1926 86, Figures 148, tab II, Figures 86, 93 (*Stenobothrus* subgen. *Omocestus*), Uvarov, 1927a 71, 73, Figure 57, Berezhkov, 1937 37, 55 Tarbinskii, 1940 25, 224 (*Omocestus* subgen. *Myrmeleotettix*) Tarbinskii, 1948 117 (*Omocestus* subgen. *Myrmeleotettix*) — *petraeus* Brisout-Barneville, 1885, Bull Soc Ent France, (3), III CXIV (*Acridium*) — *tesquorum* Tarbinskii, 1930, Konowia, IX:184, Figure 5, Tarbinskii, 1940 25, 171, 172 (*Omocestus* subgen. *Myrmeleotettix*)
- Biology: Bei Blenko, 1932b 15, Zimin, 1938 37, 47, Plate VII, Figure 35
- 477 11 (4). Frontal ridge in the σ strongly depressed for its whole length, in the φ only in the middle part. Foveolae in the σ nearly contiguous. Hind femur in both sexes with a yellow ventral aspect.
- 12(13). Pronotum in both sexes with very narrow lateral lobes, the greatest width of a lobe is 2/3 its greatest height, lateral carinae in the anterior part arcuately concave. Mesosternum in both sexes with a wide interspace between the lobes, its narrowest part 1.75-2.00 times more than its length. Tegmina in both sexes hardly reaching the distal end of the hind femur. Length of body in the σ 11.6, φ 13.5-13.7 mm, tegmina σ 8.7, φ 9.2-9m, 9m [sic!]. — Azerbaijan, Zuvant Tatom.
- *6. *O. znojki* Mistshenko sp. n.
- 13(12). Pronotum in both sexes usually with wide lateral lobes, the greatest width of a lobe is equal to its greatest height, sometimes the lobes are narrow and the greatest width of a lobe is distinctly less than its height, then the lateral carinae of the pronotum are bent at an angle in the anterior part. Mesosternum in both sexes with a narrower space between the lobes, its narrowest part hardly greater than its length.
- 14(15). Foveolae in both sexes wide and short, length of a pit 2.0-2.5 times more than its greatest width. Pronotum in both sexes anteriorly with concave lateral carinae. Tegmina in both sexes with a narrow median field, its greatest width 1.25 times more than the greatest width of the cubital field, cubital field in the φ with a distinct spurious longitudinal vein. Length of body σ 9.8-12.6,



Figures 1051-1055

(Original)

1051—Omocestus viridulus (L.), ♀, left ventral valve of ovipositor from side; 1052—O. znojko Mistshenko sp. n., ♀, allotype, left ventral valve of ovipositor from side; 1053—O. haemorrhoidalis ciscaucasicus Mistshenko subsp. n., ♀, allotype, pronotum from above; 1054—Myrmeleotettix palpalis (Zub.), ♂, apex of labial palp; 1055—M. maculatus (Thunb.), ♂, apex of labial palp.



Figures 1056-1063

(Original)

1056—Phlocerus menetriesi F.-W., ♂, tip of abdomen from above; 1057—Ph. savenkoe Mistsh., ♂, tip of abdomen from above; 1058—Ph. zaitzevi zaitzevi Mistsh., ♂, tip of abdomen from above; 1059—Ph. savenkoe Mistsh., ♂, anterior part of right tegmen; 1060—Ph. zaitzevi zaitzevi Mistsh., ♂, anterior part of right tegmen; 1061—Ph. zaitzevi egregius Mistshenko subsp. n., ♂, type, anterior part of right tegmen; 1062—Ph. zaitzevi major Mistsh., ♂, anterior part of right tegmen; 1063—Ph. svaneticus Sav., ♂, tip of abdomen from above.

♀ 12.9 - 15.5 mm, tegmina ♂ 9.4-11.7, ♀ 11.4-13.2 mm. —South-western part of European part of the U. S. S. R., Balkan Peninsula
..... *7. O. minutus (Brulle).

Znoiko, 1928 Ruskoe entomologicheskoe obozrenie, XXII 192, Figures 4a c, Plate II, Figures a, b
Tarbinskii, 1948 117 (Omocestus subgen Haploomocestus) —minuta Brulle, 1832, Insec Exp
Sci Moree, III 94, tab. XXX, Figure 5 (Oridipoda) —petraeus Jakobson, 1905.225 (Stenobothrus
subgen. Omocestus) (partim). —chersonensis Pustovolt, 1927, Zashchita rastenii ot vreditel', IV 956

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- 15(14). Foveolae in both sexes long and narrow, length of a pit 2/5-3.00 times more than its greatest width. Pronotum in both sexes anteriorly with very weakly arcuately concave lateral carinae. Tegmina in both sexes with a wide median field, its greatest width twice more than the greatest width of the cubital field, cubital field in the ♀ without a spurious longitudinal vein. Length of body ♂ 12.5-13.1, ♀ 15.8-17.2 mm, tegmina ♂ 12.3-13.2, ♀ 15.7-16.1 mm. —Azerbaijan *8 O. caucasicus Tarb. —Caucasian grassy grasshopper [*Travyanka kavkazskaya*].

Tarbinskii, 1930, Konowia, IX 182, Figure 4 Tarbinskii, 1940 25 171, 172 (Omocestus subgen. Haploomocestus)

- 16 (1). Tegmina and wings strongly abbreviated, tegmina hardly reaching the middle of the hind femora
17(22). Pronotum in both sexes with the posterior transverse groove situated nearly in the middle of the pronotum, length of the anterior part of the pronotum nearly equal to that of the posterior part of the pronotum.
18(19). ♀ vertex with broadly rounded fastigium ♀ pronotum in the anterior part with arcuately concave lateral carinae, the length of the posterior part of the pronotum in the ♀ considerably more than its narrowest part between the lateral carinae ♀ tegmina with a narrow median field, its greatest width equal to the greatest width of the cubital field. ♂ unknown Length of body ♀ 13.2, tegmina 4.0 mm. —Karakorum (according to Salfi).
..... 9 O. aymonis-sabaudiae Salfi

Salfi 1934, Ann Mus Zool R Univ Napoli (ser nuova) VI 114 Figure 2

- 19(18). ♂ vertex with pentagonal, in the ♀ with obtuse-angular or right-angular fastigium slightly rounded off at the very end Pronotum in both sexes in the anterior part with concave lateral carinae, the length of the posterior part of the pronotum is nearly equal to or less than the narrowest part of the posterior part between the lateral carinae. ♀ tegmina with a broad median field, its greatest width twice more than the greatest width of the cubital field.
20(21). Pronotum in both sexes with a moderately wide posterior part, the greatest width of the pronotum between the lateral carinae twice more than its narrowest part. ♂ tegmina distinctly narrowed toward the slightly rounded apex, the greatest width of the

costal field in the ♂ twice more than the greatest width of the subcostal field; greatest width of radial field in the ♂ equal to the greatest width of the subcostal field. Subcostal, radial, and median veins of the ♀ tegmina separated for the whole extent of the median field; subcostal field in the ♀ distinct; its greatest width 1/2 the greatest width of the costal field. Hind femur in both sexes with a red ventral aspect. Hind tibia in both sexes red. ♂ abdomen dorsally with a red tip. Length of body ♂ 15.5, ♀ 21.0 mm; tegmina ♂ 8.0, ♀ 9.4 mm. —Himalayas: Mt. Everest (according to Uvarov) 10. O. hingstoni Uv.

Uvarov, 1925, Ann. Mag. Nat. Hist., (9), XVI:166, Figure 1.

- 479 21(20). Pronotum in both sexes with a wide posterior part; the greatest width of the pronotum between the lateral carinae nearly 3 times more than the narrowest part. ♂ tegmina distinctly widened toward the broadly rounded apex; the greatest width of the costal field in the ♂ slightly more than the greatest width of the subcostal field; the greatest width of the radial field in the ♂ slightly more than the greatest width of the subcostal field; subcostal field absent in the ♀. Hind femur in both sexes with a yellow ventral aspect. Hind tibia in both sexes yellow. ♂ abdomen dorsally with a yellow tip. Length of body ♂ 9.3-9.5, ♀ 13.5-14.4 mm; tegmina ♂ 5.1-5.3, ♀ 3.7-4.4 mm. —Armenia. *11. O. demokidovi Rme.

Ramme, 1930, Mitt. Zool. Mus. Berlin, XVI:394, Tarbinski, 1930:25 (Omocestus subgen. Myrmeleotettix).

- 22(17). Posterior transverse groove of the pronotum in both sexes extending distinctly behind the middle of the pronotum; length of anterior part of pronotum more than the length of the posterior part of the pronotum.
- 23(24). ♂ tegmina reaching the seventh tergite of the abdomen; costal field of tegmina narrow; its greatest width 1.5 times more than the greatest width of the subcostal field. Tympanal organ on the first abdominal tergite in both sexes with a slit-like opening. Supraanal plate in the ♂ without teeth raised dorsad in the middle of the lateral margins and with a rounded apex. Length of body ♂ 11, ♀ 14 mm; tegmina ♂ 5.0, ♀ 3.5 mm. —Asia Minor (According to Uvarov). 12. O. nanus Uv.

Uvarov, 1934, Eos, X:81, Figure 22.

- 24(23). ♂ tegmina extending slightly beyond the first tergite of the abdomen; costal field of tegmina wide, its greatest width twice more than the greatest width of the subcostal field. Tympanal organ on the first abdominal tergite in both sexes with a wide orifice, half covered by the tympanal organ. Supraanal plate in the ♂ with sharp triangular teeth raised dorsad and with apex

produced into a point Length of body ♂ 12, ♀ 16 mm, tegmina
 ♂ 5.0, ♀ 3.5 mm.—Southeastern Tibet (according to Uvarov) . . .
 13 O tibetanus Uv.

Uvarov, 1939, Linn Soc Jour, Zool, XL, 275 562, Figure 1

145. Genus Myrmeleotettix I. Bol.

I Bolivar, 1914 Trab. Mus. Nac. Cien. Nat. (Ser Zool) 20-61 Uvarov 1927a 57, 73 Míram
 1933 20, 25 Berezhkov, 1937 28, 37 —Gomphocerus Brunner Wattenwyl 1882:84 128 (partim) Jakob-
 son, 1905 165, 182, 235 (partim) Chopard 1922:123 153 (partim) —Stenobothrus Obenberger 1926
 63 75 (partim). —Omocestus Tarbinskii, 1940:24, 162, 171 (partim) Tarbinskii 1948 112 116 (partim)
 Type of genus Myrmeleotettix maculatus (Thunb.)

Head short, moderately projecting forward and laterad, its length is
 distinctly less than the pronotum, its greatest width is nearly equal to the
 greatest width of the pronotum Eyes situated in the middle of the head
 Vertex short. Foveolae long and narrow. Antennae in both sexes with
 a distinct club-shaped widening at the apex, sometimes in the ♂ with a dis-
 tinct club on the apex. ♂ pronotum narrow in the anterior part, its great-
 est width between the lateral carinae 1.5-2 times more than its narrowest
 part, lateral carinae distinct, posterior margin projecting Tegmina and
 wings well developed reaching or not quite reaching the distal end of the
 hind femora, anterior margin of tegmina straight, precostal field not
 widened in the basal part, gradually narrowed toward the apex and extend-
 ing far beyond the middle of the tegmina, cubital field of tegmina weakly
 480 widened. Hind femora with rounded dorsal genicular lobes. Hind tibia
 with a small ventral spur on the inner side, slightly larger than the dorsal
 spur on the same side. Metasternum in both sexes with distinctly separated
 lobes Tympanal organ on the first abdominal tergite well developed, tym-
 panal lobes strongly covering the tympanal organ, leaving only a narrow
 slit-like opening. ♂ cerci bluntly conical. ♀ ovipositor with only a round
 preapical notch on the dorso-outer margin of the dorsal valves.

Four species are known, distributed in nearly all of Europe, in Asia
 Minor, in North Caucasus, in Transcaucasia (?), in Kazakhstan, Siberia
 Mongolia, and Morocco.

1 (2). ♂ antennae short and stout, gradually widened toward the apex,
 which lacks the club Maxillary palpus in both sexes with a wide
 and flat apical segment, its apex truncated, and its length 1.5 to
 2 times more than its greatest width (Figure 1054). ♀ tegmina
 distinctly not reaching the distal end of the hind femur. The
 greatest width of the median field 1.5-2 times more than the
 greatest width of the cubital field Length of body ♂ 10.4-13.1,
 ♀ 11.3-17.7 mm, tegmina ♂ 6.4-7.2, ♀ 6.9-9.2 mm —Southern
 Siberia, Altai, Mongolia *1 M. palpalis (Zub.)
 —Eastern lance-feeler grasshopper [Kop'euska vostochnaya]

Zubovskii 1899 Trudy Russkogo Entomologicheskogo obshchestva XXXIV 13 (Gomphocerus)
 Jakobson 1905 183, 238 (Gomphocerus) Berezhkov, 1937 38, 55 Tarbinskii, 1948 117 (Omocestus)
 subgen Myrmeleotettix
 Biology Rubtsov 1932:21, Figure 3T Zimin 1938 37 47

- 2(1). ♂ antennae long and slender with a distinct club at the apex (Figures 881, 882). Maxillary palpus in both sexes with a narrow apical segment; its length 3-3.5 times more than its greatest width (Figure 1055). ♀ tegmina with a wide median field; its greatest width 3-4 times more than the greatest width of the cubital field, sometimes twice more than it, then the tegmina extend beyond the distal end of the hind femora.
- 3(4). Frontal ridge in both sexes strongly depressed for nearly its whole length. ♂ antennae with a wide club near the apex (Figure 882). Tegmina in both sexes with a moderately wide median field; its greatest width 1.5-2 times more than the greatest width of the cubital field. Mesosternum in both sexes with a moderately wide interspace between the lobes; its narrowest part in the ♂ is nearly equal to, in the ♀ slightly greater than its length. ♂ Abdomen with a yellow tip. Length of body ♂ 11.4-12.5, ♀ 14.7-16.4 mm; tegmina ♂ 8.8-11.2, ♀ 11.7-13.3 mm. —Southern regions of the European part of the U.S.S.R., North Caucasus, Kazakhstan, Siberia; western Europe.. *2. *M. antennatus* (Fieb.)—Hairy or long-antennae d lance-feelered grasshopper [Kop'euska volosataya ili dlinnousaya].

Fleber, 1853, Lotos, III 101 (*Chorthippus*), Brunner-Wattenwyl, 1882:129, 132, Figure 29 (*Gomphocerus*), Jakobson, 1905:183, 237, Plate V (*Gomphocerus*), Obenberger, 1926:93, Figures 1618, tab. II, Figure 102 (*Stenobothrus* subgen. *Myrmeleotettix*), Uvarov, 1927a:73; Berezikov, 1937:38, 55; Tarbinskii, 1940:25 (*Omocestus* subgen. *Haplomocestus*); Tarbinskii, 1948:117 (*Omocestus* subgen. *Haplomocestus*). —*deserticola* Eversman, 1859, Bull. Soc. Nat. Moscou, XXXII:136 (*Gomphocerus*). —*genel* Turk, 1860, Wien. Ent. Monatsbl., IV:86 (*Stauronotus*) (not Ockay).

- 4(3). Frontal ridge in both sexes hardly depressed either only above the median ocellus, or only under it; sometimes in the ♂ it is weakly depressed for its whole length, then the tip of the abdomen is red or reddish-brown. ♂ antennae with a narrow club on the apex (Figure 881). Tegmina in both sexes with a wide median field; its greatest width 3-4 times more than the greatest width of the cubital field. Mesosternum in both sexes with a wide interspace between the lobes; its narrowest part is 1.75-2 times more than its length.
- 5(6). Frontal ridge in the ♂ weakly depressed either only above the median ocellus or for all its length. Eyes in both sexes small; vertical diameter of the eye in the ♂ 1.5, in the ♀ 1.25 times more than the subocular groove. Tegmina in both sexes weakly narrowed toward the rounded apex. Wings in both sexes smoky at the apex. ♂ abdomen 11.7-16.5 mm; tegmina ♂ 8.1-10.2, ♀ 6.7-11.4 mm. —Nearly all the European part of the U.S.S.R., North Caucasus, Transcaucasia, Kazakhstan, Siberia; northwestern Africa, western Europe, Asia Minor (?). Sometimes slightly injures forest nurseries
- *3. *M. maculatus* (Thunb.)—Stained lance-feelered grasshopper [Kop'euska pyatnistaya].

Turnberg, 1815, Mem. Acad. Sci. St.-Petersb., V:221 (*Gomphocerus*). Brunner-Wattenwyl, 1882:129, 132 (*Gomphocerus*), Jakobson, 1905:183, 238, Plate V (*Gomphocerus*), Obenberger, 1926:87, 93, Figures 1614, 172, tab. II, Figure 67 (*Stenobothrus* subgen. *Myrmeleotettix*), Uvarov, 1927a:73, 74, Miram, 1933:25; Berezikov,

1937:38, 55, Tarbinskii, 1940 25 (Omocestus subgen Myrmeleotettix) Tarbinskii, 1948 117 (Omocestus subgen Myrmeleotettix) —biguttulus Panzer, 1796 Fauna Ins Germ, fasc 33, tab 6 (Gryllus) (not Linnaeus) —rufus Zetterstedt, 1821, Orth Suec 99 (Gryllus) (not Linnaeus) —biguttatus Charpentier, 1825 Hor Ent. 166 (Gryllus) —annulatus Fischer-Waldheim, 1833, Bull. Soc Nat Moscou, VI 338 (Gomphocerus) —elegans Stephens 1835, Illustr Brit. Ent., VI 31 (Gomphocerus) —ericetarius Stephens, 1835, ibidem 31 (Gomphocerus) —calidoniensis Stephens 1835, ibidem 32 (Gomphocerus) —pallidus Fischer, Waldheim, 1846 329, tab 22, Figure 9 (Oedipoda) (not Philippi) —saussurei Seane, 1879 Mitt Schweiz. Ent Ges., V 486 (Stenobothrus) —maculatus var obscurus and viridis Schirmer, 1913, Ent Rundsch., XXX 88 (Gomphocerus)

- 6(5). Frontal ridge in the ♂ slightly depressed only under the median ocellus. Eyes in both sexes large, vertical diameter of the eye in the ♂ twice, in the ♀ 1.75 times, more than the subocular groove. Tegmina in both sexes strongly narrowed, with pointed apex. Wings in both sexes colorless. ♂ abdomen with a yellow tip. Length of body of ♂ 9.8-12.7, ♀ 12.5-14.3 mm, tegmina ♂ 6.8-7.4, ♀ 6.0-9.2 mm. —Southeastern European part of the U. S. S. R., Kazakhstan, Altai, southwestern Siberia *4. M. pallidus (Br.-W.)—Desert lance-feeler grasshopper [Kop'euska pustynnaya].

Brunner-Wattenwyl, 1882 129, 134 (Gomphocerus) Jakobson, 1905 183, 239 (Gomphocerus), Uvarov, 1927a 73, 74, Berezikov, 1937 38, 56, Tarbinskii 1948 117 (Omocestus subgen. Myrmeleotettix) —pallidus var hyalosuperficies and nigrovirgatus Vorontsovskii, 1928, Izvestiya Orenburgskoi stantsii zashchity rastenii, (1927) 18

Biology Zimin, 1938 37, 47, Plate II, Figure 10

146. Genus Microhippus Rme.

Ramme, 1939, Mitt Zool Mus Berlin, XXIV 129.

- Head short, strongly projecting forward and laterad, its length distinctly greater than the pronotum, its greatest width slightly more than the greatest width of the pronotum. Eyes situated barely in front of the middle of the head. Vertex short. Foveolae narrow. Antennae in both sexes with a distinct club-like widening near the apex. ♂ pronotum narrow in the posterior part, its greatest width between the lateral carinae twice more than the narrowest width, lateral carinae distinct, posterior margin projecting. Tegmina greatly abbreviated, in the ♂ hardly extending beyond the middle of the hind femora, in the ♀ going slightly beyond their base, anterior margin of tegmina straight, precostal field not widened in the basal part, gradually narrowed toward the apex and extending far beyond the middle of the tegmina, cubital field weakly widened. ♂ cerci short, with a distinct depression before the pointed apex. (From Ramme).

One species, living in Asia Minor, is known.

- 1(1). Frontal ridge between the bases of the antennae strongly widened, compressed near the median ocellus. ♀ antennae hardly reaching the posterior margin of the pronotum. Posterior transverse groove of the pronotum running along its middle. Supraanal plate in the ♂ triangular, with apex produced and with a wide median depression in the basal part. Length of body ♂ 12.6, ♀ 14-16 mm, tegmina ♂ 5.4,

♀ 3 mm. —Asia Minor: Anatolia. (From Ramme).
 1. M. turcicus Rme.

Ramme, 1939, Mitt. Zool. Mus. Berlin, XXIV:130, Figure 52, tab. II, Figures 8, 12a-b.

147. Genus Phlocerus F.-W.

Fischer-Waldheim, 1833, Notice sur le Phlocerus, genre nouveau d'Orthoptères de la Russie:14,
 Jakobson, 1905:166, 184, 239, Tarbinskii, 1940:25, 162, Mishchenko, 1941:125.

Type of genus: Phlocerus menetriesi F.-W.

Head short. Eyes situated in the middle of the head. Vertex short. Foveolae narrow and long. Antennae in both sexes wide and short, not reaching by far the posterior margin of the pronotum, gradually and strongly widened toward the bluntly-pointed apex, especially in the ♂, in the apical half strongly flattened, leaf-like. Pronotum with distinct lateral carinae and with a projecting posterior margin. Tegmina and wings rather well developed, they reach the distal ends of the middle of the hind femora; anterior margin of tegmina with a distinct notch in the basal part; precostal field of tegmina close to the base distinctly widened, beyond that it is distinctly narrowed and does not extend far beyond the middle of the tegmina; cubital field of tegmina weakly widened. Hind femora with rounded dorsal genicular lobes. Hind tibia with a small ventral spur on the inner side, slightly larger than the dorsal spur on the same aspect. Metasternum in both sexes with distinctly separated lobes. Tympanal organ on the first abdominal tergite well developed, partly covered.

Four species from the main Caucasian range are known.

- 1(6). Wings in both sexes with weakly developed apical lobes, which hardly projects and is broadly rounded. Supraanal plate in the ♂ with a blunt apex (Figure 1056, 1057), sometimes with a pointed apex (Figure 1058), then the ventral aspect of the hind femur, the hind tibia, and the tip of the abdomen are red or reddish.
- 2(3). Hind femur in both sexes with a yellow, orange, or brown ventral aspect. Hind tibia in both sexes, yellow, orange, or brown. Abdomen in both sexes with yellow-brown ventral aspect at the tip. Supraanal plate in the ♂ with a blunt apex (Figure 1056). Tegmina in the ♂ reaching or nearly reaching the distal end of the hind femora. Length of body ♂ 15.2-17.5, ♀ 18.5-22.3 mm; tegmina ♂ 9.6-12, ♀ 8.6-10.5 mm. —Southwestern Dagestan, northern Azerbaijan
 *1. Ph. menetriesi F.W.

Fischer-Waldheim, 1833, Notice sur le Phlocerus, genre nouveau d'Orthoptères de la Russie:17,
 tab.; Jakobson, 1905:184, 239, Tarbinskii, 1940:25, Mishchenko, 1941:127, 134, Figure 10.

- 3(2). Ventral aspect of hind femur, hind tibia, and ventral aspect of tip of abdomen, and in the ♂ sometimes the whole tip, red or reddish. Supraanal plate in the ♂ with pointed apex (Figure 1058), sometimes with a blunt and weakly notched apex (Figure 1057), then the tegmina do not reach by far the distal end of the hind femora.

- 4 (5). Tegmina in both sexes with sparse venation in the costal field, its greatest width in the σ is 2.25 times more than the greatest width of the subcostal field (Figure 1059). Supraanal plate in the σ with a blunt weakly notched apex (Figure 1057). Length of body σ 19.7, ϕ 20.3 mm, tegmina σ 10.7, ϕ 10 mm. —Northeastern Georgia *2. Ph. savenkoae Mistsh.

Mishchenko, 1941:127, 129, 134, Figures 3-4

- 5 (4). Tegmina in both sexes with dense venation in the costal field (Figure 1060), sometimes in the σ this field has sparse venation, then its greatest width is 1.5 times more than the greatest width of the subcostal field (Figure 1061). Anal plate in the σ with a pointed apex (Figure 1058) *3. Ph. zaitzevi Mistsh.
- 484 a(d). Tegmina in the σ with irregular venation in the costal field (Figures 1061, 1061), median field of tegmina in the ϕ narrow, its greatest width nearly equal to or 1.5 times more than the greatest width of the cubital field.
- b(c). Tegmina in the σ with dense venation in the costal field (Figure 1061), median field of ϕ tegmina with sparse venation and without any traces of a spurious median vein. Length of body σ 15.5-17.5, ϕ 21.1 mm —Southwestern Dagestan Mt. Khochal-dag *3a. Ph. zaitzevi zaitzevi Mistsh.

Mishchenko, 1941:127, 131, 134, Figures 1-2, 5, 7

- c(b). σ tegmina with sparse venation in the costal field (Figure 1061); median field of the ϕ tegmina with dense venation and with traces of a spurious median vein. Length of body σ 18.7, ϕ 18.5-21.2 mm, tegmina σ 10.4, ϕ 9.5-11.2 mm. —North Dagestan, Gunib region, Kamelyuk. *3b. Ph. zaitzevi egregius Mistshenko subsp. n.
- d(a). σ tegmina with regular venation in the costal field (Figure 1062), median field of ϕ tegmina wide, its greatest width twice more than the greatest width of the cubital field. Length of body σ 18.5, ϕ 22.1 mm, tegmina σ 10.1, ϕ 11 mm. —Eastern Georgia Manglisi. *3c. Ph. zaitzevi major Mistsh.

Mishchenko, 1941:127, 132, 134, Figure 6

- 6 (1). Wings in both sexes with strongly developed apical lobe which strongly projects. Supraanal plate in the σ with pointed apex (Figure 1063) Ventral aspect of hind femur, hind tibiae and tip of abdomen brown. Length of body σ 15.3, ϕ 18.4 mm, tegmina σ 9.7, ϕ 9.1 mm. —North-western Georgia Svanetiya *4. Ph. svaneticus Sav.

Savenko, 1941, Trudy Zoologicheskogo sektora Gruzinskogo filiala AN SSSR III 10 Figure Mishchenko, 1941:127, 133, 134 Figures 8, 9, 11

148. Genus Gomphocerippus Rob.

Roberts, 1941, Trans. Amer. Ent. Soc., LXVII:12, 23. — Gomphocerus Brunner-Wattenwyl, 1882 84, 128 (partim); Jakobson, 1905:165, 182, 235 (partim); Chopard, 1922:123, 153 (partim); Uvarov, 1925c: 39, 50 (partim); Miram, 1933:20, 31 (partim); Berezhkov, 1937:28, 38 (partim); Tarbinskii, 1940:25, 163 (not Thunberg), Tarbinskii, 1948:113, 117 (not Thunberg). — Stenobothrus Obenberger, 1926-63, 75 (partim).

Head short. Eyes situated in the middle of the head. Vertex short. Foveolae long and narrow. Antennae in both sexes, long, slender, with a distinct club at the apex, in the ♂ extending beyond the posterior margin of the pronotum, but in the ♀ nearly reaching it. Labium in both sexes with small rounded outer lobes which do not resemble a beak and do not extend beyond the middle of the prosternum. Pronotum with distinct lateral carinae and with a projecting posterior margin; posterior transverse groove of the pronotum running along the middle of the pronotum. Tegmina and wings well developed reaching or extending beyond the distal end of the hind femora; the anterior margin of the tegmina with a distinct notch in the basal part; precostal field of the tegmina close to the base distinctly widened, after which it is sharply narrowed and does not extend far beyond the middle of the tegmina; cubital field of tegmina slightly widened. Hind femora with 485 rounded dorsal genicular lobes. Hind tibia with a small ventral spur on the inner side, slightly larger than the dorsal spur of the same side. Metasternum in both sexes with distinctly separated lobes. Tympanal organ on the first abdominal tergite well developed, partly covered.

Only one species, widely distributed in nearly all Europe, in North Caucasus, in western Kazakhstan, in Siberia and in northern China (Manchuria) is known.

- 1 (1). Vertex wide; its greatest width in front of the eyes distinctly greater than its lateral margin taken from the anterior margin of the eye to the fastigium. Pronotum in the anterior part with arcuately concave lateral carinae. Prosternum smooth. Subgenital plate in the ♀ with a median triangular projection on the posterior margin. Length of body ♂ 13.8-16.7, ♀ 16.8-24.3 mm; tegmina 11.7-13.4, ♀ 13.7-17.4 mm. — Nearly all the European part of the U. S. S. R., North Caucasus, western Kazakhstan, and nearly all of Siberia; western Europe, northern China: Manchuria. *1. G. rufus (L.) — Rusty lance-nosed grasshopper [Kop'enoska ryzhaya].

Linnaeus, 1758, Syst. Nat., Ed. X, f. 453 (Cryllus Locusta), Brunner-Wattenwyl, 1882:129, 131 (Gomphocerus). Jakobson, 1905:183, 236, Plate V (Gomphocerus). Chopard, 1922:131, 154, Figures 345, 389, 390 (Gomphocerus). Uvarov, 1925c:50, 51, Figure 46 (Gomphocerus). Obenberger, 1926:93, Figure 1617 (Stenobothrus subgen. Gomphocerus). Miram, 1933:31 (Gomphocerus). Berezhkov, 1937:38, 57 (Gomphocerus). Tarbinskii, 1940:25 (Gomphocerus). Tarbinskii, 1948:117 (Gomphocerus). — clavicornis De Geer, 1773, Mém. Hén. Ins., III 482 (Acridium). Biology: Bel-Bienko, 1928a:185, Rubtsov, 1932c:19, 20, Figure 3R, V Zimin, 1938:35, 48, Donov-Rubtsov Zapol'skii, 1940:236, 241.

149. Genus Gomphocerus Thunb.

Thunberg, 1815, Mem. Acad. Sci. St.-Petersb., V 213, 216, 221 (partim); Brunner-Wattenwyl, 1882: 84, 128 (partim); Jakobson, 1905:165, 182, 235 (partim); Chopard, 1922:123, 153 (partim); Uvarov, 1927a: 54, 86 (partim); Miram, 1933:20, 31 (partim); Berezhkov, 1937:28, 38 (partim). — Aeropus Gintl, 1848,

Type of genus: Gomphocerus sibiricus (L.).

Head short. Eyes situated in the middle of the head. Vertex short. Foveolae narrow and long. Antennae in both sexes long and slender, with a distinct club at the apex, in the ♂ extending beyond the posterior margin of the pronotum, but in the ♀ reaching or not quite reaching the posterior margin of the pronotum. Labium in both sexes with small rounded outer lobes which do not resemble a beak and do not extend beyond the middle of the prothorax. Pronotum with distinct lateral carinae, which in the ♂ are sometimes effaced, and with a projecting posterior margin, posterior transverse groove of pronotum extending distinctly beyond [or behind] the middle of the pronotum. Tegmina and wings well developed, usually extending beyond the distal ends of the hind femora, sometimes in the ♀ slightly falling short of reaching that end, precostal field of tegmina close to the base sharply widened, then sharply narrowed and extending far beyond its middle, median field of tegmina strongly widened, its greatest width 4-7 times greater than the median width of the cubital field, if this is developed, cubital field of tegmina narrow, sometimes absent, anterior and posterior
486 cubital veins of tegmina strongly approaching, sometimes here and there or entirely fused together. Anterior tibiae of ♂ strongly swollen, pear shape. Hind femur with rounded dorsal genicular lobes. Hind tibia with a small ventral spur on the inner side, slightly larger than the dorsal spur on the same side. Metasternum in both sexes with distinctly separate lobes. Tympanal organ on the first abdominal tergite well developed, partly covered.

Four species are known, distributed in the European part of the U. S. S. R., in the mountains of western Europe, the Caucasus, Asia Minor and Middle Asia, in Kazakhstan, Siberia, on Kamchatka, on Sakhalin, in Mongolia and in China.

- 1 (4). Vertex in both sexes with obtuse angular fastigium. Frontal ridge in the ♂ with a distinct longitudinal depression below the median ocellus which (the depression) just does not reach the ventral margin of the frontal ridge. Hind tibia in the ♀ usually yellow, sometimes reddish, then the ventral aspect of the hind femurs is red.
- 2 (3). Foveolae in the ♂ nearly contiguous on the fastigium, sometimes they are widely separated, then either the fastigium is very wide and hardly projects forward, or the lateral carinae of the pronotum are effaced. ♂ pronotum weakly swollen (Figure 1064). Greatest width of the distance from the anterior margin of the lateral lobe of the ♀ pronotum to the middle transverse groove is equal to the greatest width of the distance from its posterior transverse groove to the posterior margin of the lobe

- *1. G. kudia Caud.
a (b). ♂ vertex distinctly projecting forward (Figure 1065) Foveolae in the ♂ strongly arcuately curved Antennae in the ♀ moderately slender, length of a single median segment of the antenna 2-2.5 times more than its greatest width. Tegmina in the ♀ with traces of a spurious median vein in the median field, cubital veins in the ♂ fused here and there, cubital field in the ♂ indistinct, sometimes

completely absent. Length of body ♂ 21.1-24.0, ♀ 26.1-27.0 mm; tegmina ♂ 15.8-20.0, ♀ 16.6-19.0 mm. —Basin of the Zeya, lower course of the Amur, Maritime Territory. . . . *1a. G. kudia kudia Caud.

—sibiricus var. kudia Caudell, 1927, Proc. U.S. Nat. Mus., LXXI, 7:2.—kudia Uvarov, 1931, Eos, VII 86, 87, Figure 1 (Aeropus), Tarbinskii, 1931a 150 (Aeropus).

- b(a). Vertex in the ♂ weakly projecting forward (Figure 1066). Foveolae in the ♂ nearly straight. Antennae in the ♀ very slender; length of a single middle segment 2.5-3 times more than its greatest width. Tegmina in the ♀ with a distinct spurious median vein in the median field; cubital field in the ♂ distinct; cubital veins in the ♂ distinctly separated everywhere. Length of body in the ♂ 21.3-21.7, ♀ 22.5-25.8 mm; tegmina ♂ 16.7-17.1, ♀ 18.5-20.5 mm. —Sakhalin.

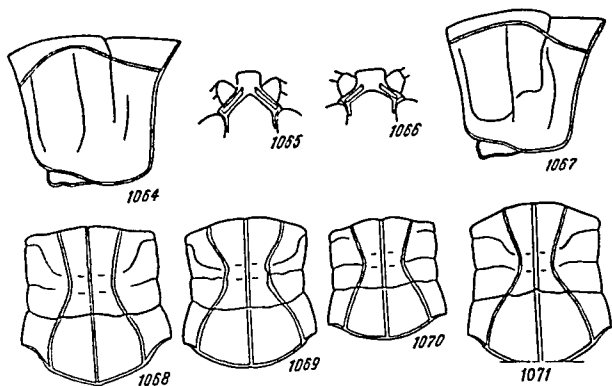
- *1b. G. kudia sachalinensis Mistshenko subsp. n.
3 (2). Foveolae in the ♂ widely separated. Fastigium in the ♂ always distinctly projecting forward and the lateral carinae of the pronotum distinct. ♂ pronotum usually strongly swollen (Figure 1067). Greatest width of the distance from the anterior margin of the lateral lobe of the pronotum in the ♀ to the middle transverse groove distinctly more than the greatest width of the distance from its posterior transverse groove to the posterior margin of the lobe

- *2. G. sibiricus (L.)—Siberian 'young mare' grasshopper [Kobyłka sibirskaya].
a (j). Ventral aspect of the hind femora, and the hind tibiae in both sexes yellow or brownish.

- 487 b(e). Antennae in both sexes long and slender; length of a single middle segment of the antenna in the ♂ 2.5-3, in the ♀ 2-2.5 times more than its greatest width. ♂ pronotum with a narrow anterior part; greatest width of pronotum between the lateral carinae always 2.5-3 times greater than its narrowest part.

- c(d). Tegmina in both sexes longer, usually extending beyond the distal end of the hind femora, sometimes in the ♀ only reaching it. Length of body ♂ 18.0-23.4, ♀ 19.0-25.0 mm; tegmina ♂ 13.0-16.5, ♀ 12.0-14.7 mm. —Northern and eastern regions of the European part of the U.S.S.R., northern Kazakhstan, Siberia, Kamchatka; northern Mongolia and North China: Manchuria. Very injurious to cereal grasses and pastures slightly damages millet, mustard, hemp, flax, potato and other plants in the European part of the U.S.S.R., in northern Kazakhstan and in Siberia (Figure 1072) . . .
. *2a. G. sibiricus sibiricus (L.)

Uvarov, 1931, Eos, VII 86, 88, Figures 25, 45, 55 (Aeropus); Tarbinskii, 1931a-150 (Aeropus). —sibiricus Linnaeus, 1767, Syn. Nat., Ed. XII, 1:701 (Cryllus locusta) Brunner-Wattenwyl, 1882-129 (partim); Jakobson, 1905:183, 235, Plate X (partim); Chopard, 1922:130, 153, Figures 350, 388 (partim); Obenberger, 1926-94, Figures 16³, 16¹⁰, tab. II, Figure 89 (Stenobothrus subgen. Gomphocerus), Uvarov, 1927a 86, Figures 38, 84 (partim); Uvarov, 1927b 271, Figures 90, 91 (partim); Tarbinskii, 1931a: 131 (partim); Miram, 1933 31, 32 (partim); Berezhkov, 1937:38, 56, 80, Figure 56, Tarbinskii, 1948:117 (Aeropus). —clavimanus Pallas, 1777, Spic. Zool., IX:21, tab. 1, Figure 11 (Cryllus)
Biology: Bel-Bienko, 1928:185; Bel-Bienko, 1932b-16 (partim); Rubtsov, 1932c:19, Figures 1A, B, D, J; Predtechenskii, Zhdanov, and Popova, 1935 77 (partim); Bel-Bienko, 1937:104, Zimin, 1938:35, 48, Plate V, Figure 25; Downar-Zapol'skii, 1940:241, Mishchenko, 1949b 157.



Figures 1064-1071
(Original)

1064—Gomphocerus kudia sachalinensis Mistshenko subsp. n., ♂, type, pronotum from side, 1065—G. kudia kudia Caud., ♂, type, vertex from above, 1066—G. kudia sachalinensis Mistshenko subsp. n., ♂, type, vertex from above, 1067—G. sibiricus turkestanicus Mistshenko subsp. n., ♂, type, pronotum from side, 1068—G. sibiricus transcaucasicus Mistshenko subsp. n., ♀, allotype, pronotum from above, 1069—G. sibiricus turcicus Mistshenko subsp. n., ♀, allotype, pronotum from above, 1070—G. armeniacus (Uv.), ♀, pronotum from above, 1071—G. licenti (Chang), ♀, pronotum from above

- 88 d(c). Tegmina in both sexes shorter, in the ♂ only reaching the distal end of the hind femora, but in the ♀ hardly extending beyond the fourth tergite of the abdomen. Length of body ♂ 15, ♀ 19 mm; tegmina ♂ 10, ♀ 7.5 mm. —Southeastern Tibet (According to Uvarov)
 2b. G. sibiricus tibetanus (Uv.)

Uvarov, 1935, Ann. Mag. Nat. Hist., (10), XVI-195 (Aeropus).

- c(b). Antennae in both sexes stouter; length of a single middle segment of the ♂ antenna 1.5-2, of the ♀ antenna 1.25-1.5 times greater than its greatest width; sometimes in the ♀ twice greater than that width; then the greatest width of the pronotum between the lateral carinae is nearly twice more than its narrowest part.
- f(i). Pronotum in both sexes with a moderately wide posterior part, the greatest width of the posterior part between the lateral carinae is 1.5 times greater than its length (Figure 1068).
- g(h): Tegmina in both sexes in the basal half with the cubital veins fused together; sometimes in the ♀ they are distinctly separated from each other, then the greatest width of the pronotum between the lateral carinae is twice more than its narrowest part. Length of body ♂ 17.1-20.4, ♀ 22.7-24.5 mm; tegmina ♂ 11.6-13.2, ♀ 12.3-14.4 mm. —Dzungarian Ala Tau, Trans-Ili Ala Tau; Bol'shaya Almatinka river, gorge Glubokoe, Aman-dzhabiyen, Kok-dzhiblau; Kungei Ala Tau: gorge of Ort-koisu; Kirghiz mts.; Tuyuk river, mouth of the Merke, Chai-sandyk; Terskei Ala Tau; Dzhiyoguz; Turkistan range; glacier of Kshemysh, Kara-beles; Zeravshan range; Zeravshan glacier; Alai range; Dzhityk-Sarytash; Pamir: Ak-baital south of Lake Kara-kul; western China, Sinkiang: valley of the Sulu-sakal. (Type from Bol'shaya Almatinka river). Injures wheat, barley, and high-mountain pastures in the mountains of southeastern Kazakhstan and Kirghizia.
 *2c. G. sibiricus turkestanicus Mistshenko subsp. n.

489 —sibiricus Jakobson, 1905 183, 235 (partim); Uvarov, 1927a-86 (partim), Uvarov, 1927b, 271 (partim); Tarbinski, 1931a-131 (partim); Miram, 1933 31, 32 (partim).

Biology: Bel-Bienko, 1932b-16 (partim); Predtechenski, Zhdanov, and Popova, 1935-77 (partim), Mishchenko, 1949b-157.

- h(g). Tegmina in both sexes in the basal half with distinctly separated cubital veins, sometimes they are only fused together here and there. ♀ pronotum in the anterior part strongly compressed; greatest width of pronotum between the lateral carinae always 2.5-3 times more than its narrowest part. Length of body ♂ 19.3-19.6, ♀ 20.6-22.2 mm; tegmina ♂ 11.7-11.9, ♀ 12.2-12.4 mm. —Nakichevan A.S.S.R.: Lake Gei-gel-Tyllyak, upper course of the Sakarsu near Lake Gei-gel, Tyllyak on the Gilyan-chai river; eastern Turkey; Oltu. (Type from localities lying between Lake Gei-gel and Tyllyak)
 *2d. G. sibiricus transcaucasicus Mistshenko subsp. n.

—sibiricus Tarbinski, 1931a-131 (partim).

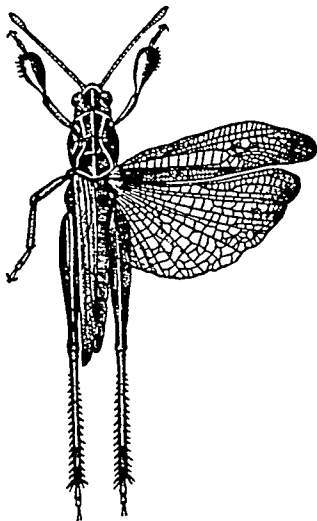


FIGURE 1072. Gomphoceris sibiricus
sibiricus (L.), ♂ (After Bei-Bienko)

- i(f). Pronotum in both sexes with a very wide posterior part; the greatest width of the posterior part between the lateral carinae is twice more than its length (Figure 1069). Length of body ♂ 18.6, ♀ 24.2 mm; tegmina ♂ 12.6, ♀ 12.8 mm. —Asia Minor: Bulgar-dag.
 2e. G. sibiricus turcicus Mistshenko subsp. n.

—sibiricus Jakobson, 1905:183, 235 (partly), Tarbinskii, 1931a:131 (partly).

- j(a). Ventral aspect of hind femora and often the hind tibiae in both sexes red or reddish. Length of body ♂ 20.3-22.3, ♀ 22.5-25.9 mm; tegmina ♂ 13.3-15.1, ♀ 10.6-14.7 mm. —Caucasus Mts. Injures young crops of barley, pastures and meadows in Dagestan.
 *2f. G. sibiricus caucasicus Motsh.

Uvarov, 1931, Eos, VII:37, 93, Figures 3C, 4C (Aeropus), Tarbinskii, 1931a:150 (Aeropus), Tarbinskii, 1940:25 (Aeropus). —sibiricus Brunner-Wattenwyl, 1882:129 (partly) —caucasicus Mochul'skii, 1840; Bull. Soc. Nat. Moscou, XIII 171, tab. 4, Figures 6, 6¹; Jakobson, 1905:235.

Biology: Bel-Bienko, 1932b:16, Predtechenskii, Zhdanov, and Popova, 1935:78.

- 4 (1). Vertex in both sexes with acute-angular or right-angular fastigium, sometimes in the ♀ it is obtuse-angular, then the hind tibiae are reddish, but the ventral aspect of the hind femora is yellow. Frontal ridge in the ♂ flat below the median ocellus or with a hardly perceptible depression only close to the very median ocellus.
- 5 (6). ♀ antennae stouter; length of a single median segment 1.25-1.5 times more than its greatest width but the length of a single segment of the apical enlargement is 1/2 to 2/3 its greatest width. Pronotum in both sexes anteriorly with moderately concave lateral carinae; the greatest width of the pronotum between the lateral carinae 2-2.5 times more than its narrowest part; posterior transverse groove in the ♀ extending along far behind the middle of the pronotum (Figure 1070). Length of body ♂ 15.4-17.0, ♀ 18.0-20.2 mm; tegmina ♂ 11.0-11.5, ♀ 10.5-12.7 mm. —Armenia. *3. G. armeniacus (Uv.)

Uvarov, 1931, Eos, VII 87, 93, Figures 3A, 4A, 5A (Aeropus), Tarbinskii, 1931a:150 (Aeropus), Tarbinskii, 1940:25 (Aeropus).

- 490 6 (5). ♀ antennae slender; length of a single median segment 2-2.5 times more than its greatest width, but the length of a single segment of the apical enlargement is nearly equal to or 4/5 its greatest width. Pronotum in both sexes anteriorly with strongly concave lateral carinae; the greatest width of the pronotum between the lateral carinae 3 times greater than its narrowest part; posterior transverse groove in the ♀ extending along almost in the middle of the pronotum (Figure 1071). Length of body ♂ unknown, ♀ 22.7 mm; tegmina ♂ 12.5, ♀ 11.3-11.5 mm. —(♂ from Chang). —China: Shansi, Inner Mongolia, Ala Shan mts. 4. G. licenti (Chang).

Chang, 1939, Notes Entom. Chinoise, VI, 1:15, 16.

150. Genus Dasyhippus Uv.

Uvarov, 1930, Eos VI 357 (partim), Tarbinskii, 1931a 139 (partim), Tarbinskii, 1940 27, 163 (partim),
 Bei-Bienko 1948, Zapiski Leningradskogo sel'skokhozyaistvennogo instituta, 5:131 — Gomphocerus
 Jakobson, 1905 165, 182, 235 (partly)

Type of genus: Dasyhippus escalerae (I. Bol.).

Head short. Eyes situated nearly in the middle of the head. Vertex short. Foveolae long and narrow. Antennae in both sexes long and slender, with a distinct club on the apex, in the ♂ extending beyond, in the ♀ nearly reaching, the posterior margin of the pronotum. Labium with small rounded outer lobes which do not resemble a beak and do not extend beyond the middle of the prosternum. Pronotum with distinct lateral carinae and with a projecting posterior margin, posterior transverse groove of the pronotum extending distinctly along behind the middle of the pronotum. Tegmina and wings well developed, they reach or extend beyond the distal end of the hind femur, precostal field of tegmina close to the base sharply widened, then sharply narrowed and not extending far beyond its middle, median field of tegmina narrow, its greatest width nearly equal to, slightly less than, or hardly more than the greatest width of the cubital field, cubital veins of tegmina distinctly separated. Front tibiae in the ♂ almost not at all thickened. Hind femora with rounded dorsal lobes [sic!]. Hind tibia with a small ventral spur on the inner side, slightly larger than the dorsal spur on the same side. Hind tarsus with a large first segment, considerably larger than the other two segments combined (without the claw). Prosternum with a distinct median tubercle on the anterior margin. Metasternum in both sexes with well-separated lobes. Tympanal organ on the first abdominal tergite well developed, partly covered. Last abdominal tergite in the ♂ with a black posterior margin. Supraanal plate in the ♂ usually with black margins. Subgenital plate in the ♀ with a distinct median oval notch on the posterior margin.

Three species are known, distributed in eastern Siberia, Mongolia, North China, and in Asia Minor.

- 1(4). ♀ vertex acute-angular, the fastigium sharpened or rounded. Front tibiae in the ♂ with long dense hairs on the ventral aspect. Supraanal plate in the ♂ with black margins.
- 491 2(3). Eyes small in both sexes, vertical diameter of an eye in the ♂ 1.5 times greater than the subocular groove, in the ♀ nearly equal to it. Foveolae in the ♂ long, the length of a pit nearly 4 times greater than its greatest width. ♂ Tegmina with a wide costal field, its greatest width is 3 times more than the greatest width of the subcostal field. Length of body ♂ 10.8-19.3, ♀ 18.2-21.4 mm, tegmina ♂ 11.2-12.7, ♀ 11.8-14.8 mm. — East Siberia, Mongolia and northern China. Injures cereal grasses and hay in Transbaikalia. *1. D. barbipes (F.-W.)

Fischer-Waldheim, 1846 339 (Gomphocerus) Jakobson, 1905 236 (Gomphocerus) Tarbinskii
 1931a 140, 146, Figures 13-14 — przewalskii Zubovskii, 1896, Ezhegodnik Zoologicheskogo muzeya Akademi
 demii Nauk I 150 (Gomphocerus) Jakobson, 1905 183, 235 (Gomphocerus)
 Biology Bei-Bienko, 1932b 16

- 3 (2). Eyes larger in both sexes; vertical diameter of the eye in the σ twice, in the φ 1.5 times more than the subocular groove. Foveolae in the σ shorter; length of a pit 2.5 times more than its greatest width. σ tegmina with a narrow costal field; its greatest width 1.25-1.5 times more than the greatest width of the subcostal field. Length of body σ 16.8-20.2, φ 19.6-22.1 mm; tegmina σ 13.6-14.5, φ 14.4-16.2 mm. — Asia Minor. 2. D. escalerae (I. Bol.)

I. Bolivar, 1899, Ann. Soc. Ent. Belg., XLIII:590 (Gomphocerus). Jakobson, 1905:183, 237 (Gomphocerus). Uvarov, 1930, Eos, VI:358, Figures 5A-E, Tarbinskii, 1931a:140, 148, Figures 16-17.

- 4 (1). Vertex in the φ right-angled, the fastigium pointed. Front tibiae in the σ with sparse short hairs on the ventral aspect. Supraanal plate in the σ of the same color as the tip of the abdomen. Length of body σ 17.0-18.3, φ 20.0-22.5 mm; tegmina σ 12.2-12.5, φ 15-15 mm. — China: Hopeh, Shantung 3. D. peipingensis Chang.

Chang, 1939, Notes Entom. Chinoise, VI, 18, 14, tab. II, Figures 3, 6, 7, 8, 9, tab. III, Figure 5.

151. Genus Aeropedellus Heb.

Hebard, 1935, Ent. News, XLVI:186. — Gomphocerus Jakobson, 1905:165, 182, 235 (partim), Chopard, 1922:123, 153 (partim); Uvarov, 1927a:58, 86 (partim); Miram, 1933:20, 31 (partim); Berezikov, 1937, 28, 38 (partim). — Dasyhippus Tarbinskii, 1931a:139 (partim); Tarbinskii, 1940:27, 163 (partim); Tarbinskii, 1948:113, 117 (not Uvarov). — Mesasiippus Bei-Bienko, 1948, Zapiski Leningradskogo sel'skokhozyaistvennogo Instituta, 5:132 (partim).

Type of genus: Aeropedellus clavatus (Thom.), North America.

- Head short. Eyes situated almost in the middle of the head. Vertex short. Foveolae narrow and long. Antennae slender and rather long in both sexes, usually weakly widened toward the apex and sometimes with a distinct club on the apex, extending beyond or not reaching the posterior margin of the pronotum. Labium with small rounded outer lobes which do not resemble a beak and do not extend beyond the middle of the prosternum. Pronotum usually with distinct lateral carinae which are strongly angularly or arcuately concave in the anterior part; posterior transverse width of the pronotum extending behind the middle of the pronotum; the greatest width of the posterior part of the σ pronotum is considerably more than
492 the greatest width of the anterior part; posterior margin projecting. Tegmina and wings usually abbreviated, especially in the φ , sometimes well developed; σ tegmina always reaching the tip of the abdomen and in the φ they always overlap on the medio-dorsal line [or on the dorsum]; precostal field of tegmina close to the base sharply widened, then sharply narrowed and not extending far beyond its middle; median field of tegmina narrow; its greatest width equal to or distinctly more than the width of the cubital field; cubital veins of tegmina distinctly separated. Front tibiae in the σ usually not thickened; but sometimes slightly widened in the shape of a pear. Hind femora with rounded dorsal lobes [sic!]. Hind tibiae with a small ventral spur on the inner side, slightly greater than the dorsal spur on the same side. Hind tarsus with a small first segment; its length equal to or less than the length of the other 2 segments without the claw. Prosternum

with a distinct median tubercle on the anterior margin. Metasternum in both sexes with well separated lobes. Tympanal organ on the first abdominal tergite well developed. Last abdominal tergite in the ♂ with a black posterior margin. Supraanal plate in the ♂ with black margins. Subgenital plate in the ♀ with a distinct median oval notch on the posterior margin.

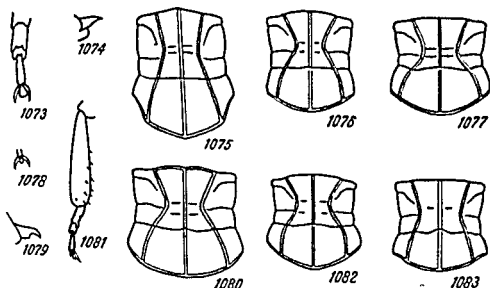
Up to 4 species are known, distributed in the mountains of western Europe, in northern Caucasus, in the southeast of the European part of the U.S.S.R., Kazakhstan, Siberia, Kamchatka, Mongolia, and North America.

- 1 (2). Tarsus with a wide empodium between the claws, the greatest width of the empodium twice more than the greatest width of the claw (Figure 1073), sometimes the empodium is narrow, equal to the greatest width of the claw, then in the ♂ the frontal ridge is flat, gradually divergent toward the clypeus and in the ♀ the ventro-outer margin of the ventral valves of the ovipositor are without the pre-apical notch (Figure 1074) *1. *Ae. variegatus* (F. -W.)—Stained lance-nosed grasshopper [Kop'enoska pyatmstaya].
- a(d). Tarsi (especially the middle ones) in both sexes with a narrow empodium between the claws, the greatest width of the empodium equal to or hardly more than the greatest width of a claw.
- b(c). ♂ antennae long and slender, length of a single median segment 1.75-2 times more than its greatest width. Metasternum in the ♀ with a narrow interspace between the lobes, the greatest width of the interspace distinctly less than its length. Length of body ♂ 15-17, ♀ 17.8-24.0 mm, tegmina ♂ 6.7-12.0, ♀ 6.5-9.0 mm—North Caucasus, northeastern Kazakhstan, Altai, south-central and eastern Siberia. Injures hay in the Transbaikal, and sometimes also cereal grasses
- *1a *Ae. variegatus variegatus* (F. -W.)

—*variegatus* Fischer-Waldheim, 1846 341, tab XXVI Figure 8 (not Figure 5) (*Gomphocerus*)
 Jakobson 1905 183, 236 (*Gomphocerus*) (partim) Chopard 1922 130, 154 (*Gomphocerus*) (partim)
 Uvarov, 1927a 86, 87 (*Gomphocerus*) (partim), Tarbinskii 1931a 140 Figures 7-9 (*Dasyhippus*)
 (partim) Miram 1933 31, 32 (*Gomphocerus*) (partim), Berezikov, 1937 39 57 (*Gomphocerus*)
 (partim), Tarbinskii 1940 27 (*Dasyhippus*)

Biology Bei-Bienko, 1932b 16 Rubtsov, 1932c 19 21, Figures 3R, U

- c(b). ♂ antennae stouter and shorter, the length of a single middle segment of the antenna is equal to or 1.25 times more than its greatest width. ♀ metasternum with a wider interspace between the lobes, the greatest width of the interspace is equal to or distinctly more than its length. ♀ pronotum with a wide posterior part, the greatest width of the pronotum between the lateral carinae is usually twice more than the length of the posterior part of the pronotum (Figure 1077). Length of body ♂ 13.4-14.3, ♀ 16.4-20.6 mm, tegmina ♂ 10.3-10.5, ♀ 5.8-8.8. —Mongolia Olonur river, Boshokto southwest of Ulanom, Kerulen river, Lake Telmin-nur, environs of monastery of Van-gun, Ulanerig northwest of Dzhibkhalantu, Murinu river, Lake Achit-nur, Lamyngegen in southeastern Khangai, Dzabkhyn river, environs of Dolon-nur, Ulan-Bator, Tsagancholotei, southern spur of Bogdoula, Ulan-daba, environs of Khangai-daban, Lake Buruldzh-dzhurgalanty, Chelotai-buluk, Tola river, lower course of the Baidarik, Kholi in northern Gobi, Malagaitendab pass [or



Figures 1073-1083
(Original)

1073—Aeropedullus variegatus gelidus Mistshenko subsp. n., ♂, type, left middle tarsus from above; 1074—Ae. variegatus variegatus (F.-W.), ♀, left ventral valve of ovipositor from side; 1075—Ae. variegatus borealis Mistshenko subsp. n., ♂, paratype, pronotum from above; 1076—Ae. variegatus minutus Mistshenko subsp. n., ♂, type, pronotum from above; 1077—Ae. variegatus fasciatus Mistshenko subsp. n., ♀, allotype, pronotum from above; 1078—Ae. balliolus Mistshenko sp. n., ♂, paratype, tip of left middle tarsus from above; 1079—Ae. balliolus Mistshenko sp. n., ♀, allotype, left ventral valve [lower notch] of ovipositor from side; 1080—Ae. reuteri (Mir.), ♀, pronotum from above; 1081—Ae. reuteri (Mir.), ♂, left anterior tibia and tarsus from side; 1082—Ae. balliolus Mistshenko sp. n., ♀, allotype, pronotum from above; 1083—Ae. volgensis (Predt.), ♀, pronotum from above.

dam], Khan-tabyn-sume and Lukh-sume in Khungan. (Type from Ulan-erig). 1b. Ae. variegatus fasciatus Mistshenko subsp. n.

—variegatus Jakobson, 1905 183, 236 (Gomphocerus) (partim), Uvarov, 1927a 86, 87 (Gomphocerus) (partim), Tarbinskii, 1931a 140 (Dasyhippus) (partim), Miram, 1933 31, 32 (Gomphocerus) (partim), Tarbinskii, 1940 27 (Dasyhippus)

d(a). Tarsi (especially the middle ones) in both sexes with a wide empodium between the claws, the greatest width of the empodium twice more than the greatest width of the claw (Figure 1073).

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e(h). ♂ pronotum with moderately concave lateral carinae in the anterior part, the greatest width of the anterior part of the pronotum between the lateral carinae 1.5 times more than the narrowest part of that portion (Figure 1075). ♀ tegmina with a wide precostal field; its greatest width is distinctly more than the greatest width of the median field.

f(g). Eyes larger in the ♂, vertical diameter of an eye distinctly greater than the subocular groove. ♀ antennae slender, the length of a single median segment of the antennae is 1.5 times more than its greatest width. Length of body ♂ 17.3-18.5, ♀ 16.8-21.4 mm, tegmina ♂ 11.1-12.3, ♀ 7.2-9.5 mm, f. macroptera ♂ 13.2-16.3, ♀ 16.3 mm. —Yakutia: Olenek, Chemkintsy on the Yana, Khotyngakh on the Dulgalakh river, Ken-yuryakh in the upper reaches of the Yana, Nelgekhe river, Endybal river-cove [or factory, works, etc.] on the Endybal river, Verkhoyansk, Vilyu river, Vilyusk, Nyurba on the Vilyu river, Konta-krest, Yakutsk, Berezhuges on the left bank of the Amur, Arylakh on the Adycha river, Adycha river, Chaidakh above the mouth of the Borulakh, Sergelyakh settlement near Yakutsk, 2nd Neryukteisk "parish", 2nd Tylyminsk "parish", Oi-Bes near Pavlovskoe village, the Namskoe village on the left bank of the Lena, Khabarov land: Aldoma river near Ayana, Ola, mountains of Yankat-negti and the mouth of the Tan'yurera (of the Anadyr' basin), Nikolaevsk on the Amur, Kamchatka, Krasnyi range Vatskazhatsa spur. (Type from Yakutsk) *1c. Ae. variegatus borealis Mistshenko subsp. n.

—variegatus Jakobson, 1905 183, 236 (Gomphocerus) (partim), Tarbinskii, 1931a 140 (Dasyhippus) (partim), Miram 1933 31, 32 (Gomphocerus) (partim).

g(f). ♂ eyes small, vertical diameter of the eye equal to or nearly equal to the subocular groove. ♀ antennae stout, length of a single median segment of the antenna equal to its greatest width. Length of body ♂ 15.3-17.7, ♀ 18.6-19.5 mm, tegmina ♂ 10.2-11.5, ♀ 1.7-7.7 mm —Chukotski peninsula, Chaun bay Cape Matyushkina, mouth of the Ichun. (Type from the mouth of the Ichun) *1d. Ae. variegatus gelidus Mistshenko subsp. n.

- h(e). σ pronotum with strongly concave lateral carinae in the anterior part; the greatest width of the anterior part of the pronotum between the lateral carinae twice greater than the narrowest part of that part (Figure 1076). φ tegmina with a narrower precostal field; its greatest width is equal to the greatest width of the median field. Length of body σ 14.4-14.6, φ 13.6-14.7 mm; tegmina σ 7.9-9.6, φ 5.1-6.7 mm. —Irkutsk Region, Balagansk District: Balagansk, Malyshevka on the Angara opposite Balagansk. (Type from Balagansk). *1e. Ae. variegatus minutus Mistshenko subsp. n.

—variegatus Tarbinskii, 1931a:140 (Dasyhippus) (partim).

- 2 (1). Tarsi in both sexes with a narrow empodium between the claws; the greatest width of the empodium is equal to the greatest width of the claw (Figure 1078). Frontal ridge in the σ either strongly depressed in the middle part or distinctly narrowed below the median ocellus, and nearly parallel sided in the dorsal part. φ ovipositor with a distinct preapical notch on the ventro-outer margin of the ventral valves (Figure 1079).
- 3 (4). φ pronotum with a wide posterior part; the greatest width of the pronotum between the lateral carinae is twice more than the length of the posterior part of the pronotum (Figure 1080). Front tibiae in the φ distinctly swollen (Figure 1081). Length of body σ 14-18, φ 15-18 mm; tegmina σ 9-12, φ 4.7-6.6 mm. —Krasnoyarsk Territory, Minusinsk District; Irkutsk Region: Balagansk District. *2. Ae. reuteri (Mir.)
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- Miram, 1906-1907, Ofv. Flak. Vet.-Soc. Forh., XLIX, 6:6 (Gomphocerus). —simillimus Ikonnikov, 1911, Russkoe entomologicheskoe obozrenie, XI:98 (Gomphocerus). —variegatus Tarbinskii, 1931a-140, Figure 10 (Dasyhippus) (partim); Berezhkov, 1937:39, 57 (Gomphocerus) (partim).
- 4 (3). φ pronotum with a narrower posterior part; the greatest width of the pronotum between the lateral carinae is 1.5 times greater than the length of the posterior part of the pronotum (Figure 1082). Front tibiae in the σ not swollen.
- 5 (6). Pronotum in the anterior part in the σ with distinct, in the φ with strongly concave lateral carinae; the narrowest part of the pronotum in the φ between them is $1/2$ the width at the anterior margin of the pronotum (Figure 1082). Front tibiae in the σ with sparse short hairs on the ventral aspect. Length of body σ 11.6-15.5, φ 15.5-19.4 mm; tegmina σ 6.6-8.9, φ 5.1-6.1 mm. —Kazakhstan: Dolinskoe village of Koradas railroad station in Karaganda Region, Akmolinsk District and the Nura river in Akmolinsk Region; Kulunda steppe near Slavgorod. (Type from the Dolinskoe village). *3. Ae. baliolus Mistshenko sp. n.
- variegatus Jakobson, 1905:183, 236 (Gomphocerus) (partim); Uvarov, 1927a:86, 87 (Gomphocerus) (partim); Tarbinskii, 1931a 140 (Dasyhippus) (partim); Miram, 1933 31, 32 (Gomphocerus) (partim); Tarbinskii, 1940 27 (Dasyhippus) (partim).
- 6 (5). φ pronotum with weakly concave lateral carinae; the narrowest part of the pronotum between them $2/3$ the width at the anterior margin of

the pronotum (Figure 1083). Front tibiae of σ usually with long dense hairs on the ventral aspect, now and then with short hairs, then the lateral carinae of the pronotum are obsolete in the anterior part. Length of body σ 11.7-14.7, φ 13.5-18.8 mm, tegmina σ 7.6-9.2, φ 5.1-7.5 mm —South Astrakhan Region, western Kazakhstan (!)..... *4. Ae. volgensis (Predt)

Predtechenskii, 1928, Zapiski Astrakhanskoi stantsii zaibchity rastenii ot vreditelii, II, 1-85, Figure 3 (Chorthippus)(partim) Predtechenskii 1928 Ruskoe entomologicheskoe obozrenie, XXII 229, Figures 1-4 (Chorthippus)(partim) Tarbinskii, 1931a 140, 145, Figures 11-12 (Dasyhippus) Tarbinskii 1948 117 (Dasyhippus) Bei-Bienko 1948 Zapiski Leningradskogo sel skokhoryalistvennogo instituta, 5 133 (Mesasippus)

152. Genus Mesasippus Tarb.

Tarbinskii, 1931a 129 —Chorthippus Uvarov, 1927a 58 74 (partim) Berezhkov, 1937 28 39 (partim) —Mesasippus Bei Bienko 1948 Zapiski Leningradskogo sel skokhoryalistvennogo instituta 5 132 (partim). Type of genus Mesasippus kozhevnikovi (Tarb)

Head short Eyes situated almost in the middle of the head Vertex short. Foveolae narrow and long Antennae narrow in both sexes, sometimes weakly widened at the apex, extending beyond or not reaching the posterior margin of the pronotum. Labium with small rounded outer lobes which do not resemble a beak and do not extend beyond the middle of the prosternum Pronotum usually with distinct lateral carinae which are nearly parallel to each other in the anterior part or are weakly concave, posterior transverse groove of pronotum extending behind the middle of the pronotum, the greatest width of the posterior part of the pronotum in the σ is equal to or near-
496 ly equal to the greatest width of the anterior part, posterior margin projecting. Tegmina and wings usually abbreviated, especially in the φ , some times well developed, σ tegmina far from reaching the tip of the abdomen, in the f macroptera extending beyond it, and in the φ often distinctly separated on the medio-dorsal line [or dorsum], precostal field of tegmina close to the base distinctly widened, then sharply narrowed and not extending far beyond its middle, median field of tegmina rather narrow, its greatest width equal to or distinctly more than the greatest width of the cubital field, cubital veins of the tegmina distinctly separated Front tibiae in the σ not thickened. Hind femora with rounded dorsal lobes [sic']. Hind tibia with a small ventral spur on the inner side slightly larger than the dorsal spur on the same side. Hindtarsus with a small first segment, its length is equal to or less than that of the other two segments without the claw Prosternum with a distinct median tubercle on the anterior margin Metasternum in both sexes with separated lobes. Tympanal organ on the first abdominal terior margin Supraanal plate in the σ with black margins Subgenital plate in terior margin Anal plate in the σ with black margins Genital plate in the φ with a small median oval notch on the posterior margin

Nine species are known, being distributed in Kazakhstan Uzbekistan, western China, and northwestern Mongolia

- 1(4). ♂ tarsi with a wide empodium between the claws; its greatest width twice more than the greatest width of the claw (Figure 1084). ♂ antennae moderately slender; length of a single middle segment of the antenna 1.5 times more than its greatest width (Figure 1085). ♀ tegmina widely separated on the dorsum at the base. ♀ mesosternum with a wide interspace between the lobes; its narrowest part almost equal to the narrowest part of a mesosternal lobe (Figure 1086).
- 2(3). Eye in the ♀ small; the vertical diameter of an eye nearly equal to the subocular groove (Figure 1087). ♂ vertex with straight lateral margins in the apical part (Figure 1088). ♀ tegmina short, the greatest width of a tegmen 2/5 its length. Mesosternum in the ♂ with a wide interspace between the lobes; its narrowest part 1.5 times more than its length (Figure 1089). Length of body ♂ 12.5-14.5, ♀ 17.0-19.5 mm; tegmina ♂ 6.5-7.0, ♀ 3.5-5.0 mm. —Eastern Kazakhstan, southern Altai *1. M. divergens (B.-Bienko).

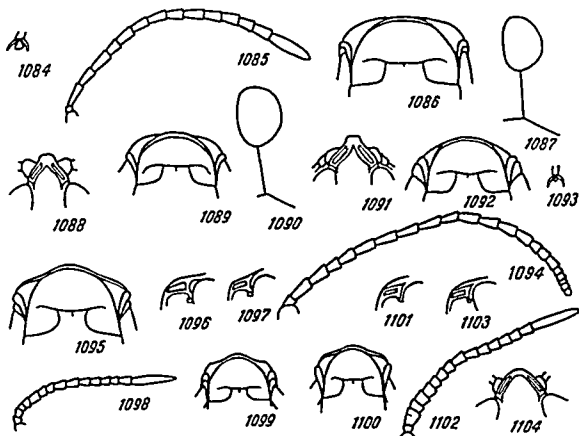
—geophilus divergens Bei-Bienko, 1930, Izvestiya Zapadno-Sibirskogo geograficheskogo obshchestva, VII-198, 212. Figures 2-3 (Chorthippus). Bei-Bienko, 1948, Zapiski Leningradskogo sel'skokhozyaistvennogo instituta, 5 133.

- 3(2). Eye of the ♀ larger; vertical diameter of the ♀ eye 1.5 times greater than the subocular groove (Figure 1090). ♂ vertex with arcuately concave lateral margins in the fastigial part (Figure 1091). ♀ tegmina longer; the greatest width of a tegmen 2/7 to 1/3 its length. ♂ mesosternum with narrower interspace between the lobes; its narrowest part equal to its length (Figure 1092). Length of body ♂ 16, ♀ 18-21 mm; tegmina ♂ 8.8, ♀ 4-6 mm. —Eastern Kazakhstan: Ust-Narymskoe; western China: Dzungaria (!) *2. M. geophilus (B.-Bienko).

497 Bei-Bienko, 1948, Zapiski Leningradskogo sel'skokhozyaistvennogo instituta, 5-133. Bei-Bienko, 1930, Izvestiya Zapadno-Sibirskogo geograficheskogo obshchestva, VII 196, 202, 212, Figure 1 (Chorthippus).

- 4(1). ♂ tarsi with a narrow empodium between the claws, the greatest width of the empodium is equal to the greatest width of the claw (Figure 1093); sometimes the empodium is greater than this width, then the length of a separate median segment of the antenna is twice more than its greatest width (Figure 1094). ♀ tegmina overlapping each other on the dorsum; if sometimes they are only contiguous then the narrowest part of the interspace between the lobes of the mesosternum is considerably less than the narrowest part of the mesosternal lobe (Figure 1095).
- 498 5(6). ♀ tegmina hardly reaching the anterior margin of the third abdominal tergite. Foveolae in the ♀ sharply narrowed toward the fastigium (Figure 1096). ♂ unknown. Length of body ♀ 18.8-19.1, tegmina 4-4.8 mm. —Eastern Kazakhstan: Zaisansk District *3. M. fuscovittatus (Tarb.)

Tarbinskii, 1926, Konowia, VI:205 (Chorthippus) —kozevnikovi fuscovittatus Bei-Bienko, 1948, Zapiski Leningradskogo sel'skokhozyaistvennogo instituta, 5-134.



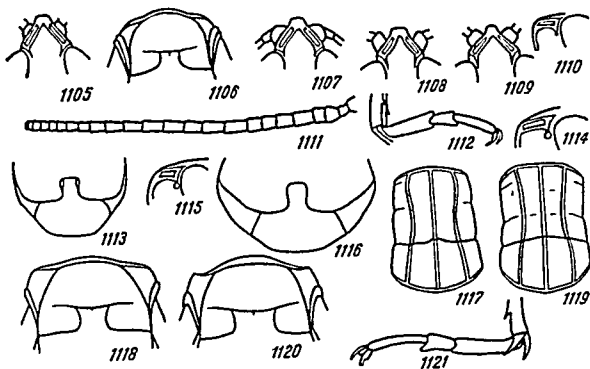
Figures 1084-1104
(Original)

1084—Mesasiippus divergens (B. Bienenko), ♂, tip of left anterior tarsus from above, 1085—M. divergens (B. -Bienenko), ♂, right antenna from above, 1086—M. divergens (B. -Bienenko), ♀, mesothorax, 1087—M. divergens (B. -Bienenko), ♀, left eye, 1088—M. divergens (B. -Bienenko), ♂, vertex from above, 1089—M. divergens (B. -Bienenko), ♂, mesothorax, 1090—M. geophilus (B. -Bienenko), ♀, left eye, 1091—M. geophilus (B. -Bienenko), ♂, vertex from above, 1092—M. geophilus (B. -Bienenko), ♂, mesothorax, 1093—M. scitus Mistshenko sp. n., ♂, type, tip of left anterior tarsus from above, 1094—M. arenosus arenosus (B. -Bienenko), ♂, right antenna from above, 1095—M. fuscovittatus (Tarb.), ♀, mesothorax, 1096—M. fuscovittatus (Tarb.), ♀, left foveola, 1097—M. scitus Mistshenko sp. n., ♀, allotype, left foveola, 1098—M. scitus Mistshenko sp. n., ♀, allotype, right antenna from above, 1099—M. scitus Mistshenko sp. n., ♂, type, mesothorax, 1100—M. barsukiensis Mistshenko sp. n., ♂, type, mesothorax, 1101—M. barsukiensis Mistshenko sp. n., ♂, type, left foveola, 1102—M. barsukiensis Mistshenko sp. n., ♀, allotype, right antenna from above, 1103—M. amophilus B. -Bienenko, ♀, left foveola, 1104—M. barsukiensis Mistshenko sp. n., ♀, allotype, vertex from above

- 6 (5). Tegmina in both sexes reaching or extending beyond the sixth abdominal tergite, sometimes in the ♀ they reach only the posterior margin of the third or fourth tergite, then the foveolae are not narrowed toward the fastigium (Figure 1097).
- 7 (8). ♀ antennae short and stout; length of a single middle segment of the antenna equal to its greatest width (Figure 1098), sometimes hardly greater than that width, then the inner aspect of the hind femur is without a dark longitudinal band near the distal end. ♂ mesosternum with a wide interspace between the lobes; its narrowest part is distinctly greater than its length (Figure 1099). Length of body ♂ 11.7, ♀ 14.7-19.4 mm; tegmina ♂ 6.2, ♀ 4.4-6.3 mm. — Kazakhstan; Chelkar, Koilibai in the sands of Malye Barsuki, Chur-bai-nur river in Karaganda Region (type from Koilibai). *4. *M. scitus* Mistshenko sp. n.
- 8 (7). ♀ antennae longer and more slender; length of a single middle segment of the ♀ antenna 1.5-2 times more than its greatest width, sometimes hardly greater than that width, then the inner aspect of the hind femur has a dark longitudinal band near the distal end. ♂ mesosternum with a narrower interspace between the lobes; its narrowest part is equal to or less than its length (Figure 1100).
- 9 (14). Foveolae in the ♂ short; length of a pit 2.25-2.5 times greater than its width (Figure 1101). ♀ antennae stout and short; the length of a single middle segment of the antenna hardly exceeds its greatest width (Figure 1102), sometimes it is 1.5 times greater than that width, then the length of a foveolae is 2.5 times greater than its greatest width (Figure 1103) and the ♀ tegmina barely reach the posterior margin of the third abdominal tergite.
- 10 (11). Tegmina in the ♂ barely reaching the middle of the hind femora, but in the ♀ they do not reach or they barely reach the posterior margin of the third abdominal tergite. ♀ tegmina without a spurious vein in the precostal field. Antennae in both sexes rather long; the length of a single middle segment of the antenna 1.5 times greater than its greatest width. ♂ mesosternum with wide lobes, the narrowest part of a lobe considerably more than its greatest length. Length of body ♂ 13.3-14.1, ♀ 17.6-18.4; tegmina ♂ 5.8-6.7, ♀ 4.7-4.9 mm. — Eastern Kazakhstan: Taldy-kurgan Region, sands of Undzhal-kum *5. *M. ammophilus* B. -Blenko

Bel-Bienko, 1948, Izvestiya AN Kazakhskoi SSR (seriya zoologicheskaya), 8:187, Figure 1.

- 11 (10). ♂ tegmina extending far beyond the middle of the hind femora in the ♀ distinctly extending beyond the posterior margin of the third abdominal tergite. ♀ tegmina with a distinct spurious vein in the precostal field.
- 12 (13). ♀ vertex with rounded fastigium (Figure 1104). ♂ antennae rather long; the length of a single middle segment of the antenna 1.5 times greater than its greatest width. ♂ mesosternum with nearly quadrate lobes; the narrowest part of a lobe is nearly equal to the greatest length thereof (Figure 1100). Length of body ♂ 12.3-14.9, ♀ 17.4-19.5 mm; tegmina ♂ 6.8-7.5, ♀ 6.1-6.6 mm. — Western Kazakhstan,



Figures 1105-1121
(Original)

1105—Mesasippus arenosus arenosus (B. Bilenko), ♀, vertex from above, 1106—M. arenosus arenosus (B. Bilenko), ♂, mesosternum, 1107—M. arenosus arenosus (B. Bilenko), ♂, vertex from above, 1108—M. arenosus zaisanicus Mistshenko subsp. n., ♂, type, vertex from above, 1109—M. arenosus zaisanicus Mistshenko subsp. n., ♀, allotype, vertex from above, 1110—M. kozhenikovii iliensis Mistshenko subsp. n., ♂, type, left foveola, 1111—M. kozhevnikovii kozhevnikovii (Tarb.), ♀, left antenna from above, 1112—M. kozhevnikovii robustus Mistshenko subsp. n., ♀, allotype, left hind tarsus from side 1113—M. kozhevnikovii (Tarb.), ♀, mesosternum, 1114—M. kozhevnikovii kozhevnikovii (Tarb.), ♀, left foveola, 1115—M. kozhevnikovii robustus Mistshenko subsp. n., ♀, allotype, left vertexal pit, 1116—M. kozhevnikovii iliensis Mistshenko subsp. n., ♀, allotype, metasternum, 1117—M. kozhevnikovii iliensis Mistshenko subsp. n., ♂, type, pronotum from above 1118—M. kozhevnikovii iliensis Mistshenko subsp. n., ♂, allotype, mesosternum, 1119—M. kozhevnikovii robustus Mistshenko subsp. n., ♂, type, pronotum from above, 1120—M. kozhevnikovii robustus Mistshenko subsp. n., ♀, allotype, mesosternum, 1121—M. nudus (Urn.), ♀, right hind tarsus from side

Aktyubinsk Region: Chelkar, Zholchi, and Kollbai in Malye Barsuki. (Type from Zholchi). Lives on sands.

- 13(12). ♀ vertex with acute-angular or right-angular fastigium (Figure 1105). ♂ antenna slender; the length of a single middle segment of the antenna 2-2.5 times more than its greatest width. (Figure 1094). ♂ mesosternum with wide lobes; the narrowest part of a lobe is distinctly greater than its greatest length (Figure 1106). *6. M. barsukiensis Mistshenko sp. n.
- a (b). ♂ vertex with straight lateral margins in the fastigial part (Figure 1107); fastigium in the ♀ right-angled. ♀ tegmina with traces of a spurious median vein in the median field; the greatest width of the median field 1.5 times more than the greatest width of the cubital field. Length of body ♂ 14-17, ♀ 18.0-20.4 mm; tegmina ♂ 7-9, ♀ 6-8 mm. —Eastern Kazakhstan: Semipalatinsk Region *7a. M. arenosus arenosus (B. -Blenko).

—Kozhevnikov's arenosus Bei-Blenko, 1930, Izvestiya Zapadno-Sibirskogo geograficheskogo obshchestva, VII.199, 201, 213, Figure 4 (Chorthippus), Berezkhov, 1937:62 (Chorthippus), Bei-Blenko, 1948, Zapiski Leningradskogo sel'skokhozyaistvennogo instituta, 5:134.

- b (a). ♂ vertex with arcuately concave lateral margins in the fastigial part (Figure 1108); ♀ fastigium slightly acute-angular (Figure 1109). ♀ tegmina without spurious median vein in the median field; the greatest width of the median field is nearly equal to the greatest width of the cubital field. Length of body ♂ 15.5, ♀ 16.9-18.4 mm; tegmina ♂ 7.6, ♀ 5.8-6.1 mm. —Eastern Kazakhstan: banks of Lake Zaisan *7b. M. arenosus zaisanicus Mistshenko subsp. n.
- 14 (9). Foveolae in the ♂ long; length of a pit 3-3.5 times greater than its greatest width (Figure 1110). ♀ antennae slender; the length of a single median segment of the antenna 1.75-2 times more than its greatest width (Figure 1111), sometimes 1.5 times more than that width, then the ♀ tegmina extend distinctly beyond the posterior margin of the third abdominal tergite.
- 15(16). Ventral aspect of the front femur and the front tibia in the ♂ with long dense hairs. Hind tarsus in the ♀ with a long first segment, its length equal to the length of the other 2 segments (Figure 1112). *8. M. kozhevnikovii (Tarb.) —Kozhevnikov's 'little horse' grasshopper [Konek Kozhevnikova].
- a (b). ♂ antennae very long; the length of a single middle segment of the antenna is 3-3.5 times greater than its greatest width. ♀ tegmina reaching or extending beyond the middle of the hind femora; in f. macroptera the tegmina reach the distal ends of the hind femora, then the narrowest part of the space between the lobes of the metasternum nearly equals its length (Figure 1113). Foveolae in the ♀ long; the length of a pit in the ♀ is 3 times more than its greatest width. (Figure 1114). Length of body ♂ 17.5-19.3, ♀ 19.6-27.4 mm; tegmina ♂ 10.0-11.2, ♀ 8.7-11.3 mm, f. macroptera ♂ 17.2 mm. —South Kazakhstan, Uzbekistan. *8a. M. kozhevnikovii kozhevnikovii (Tarb.)

Bei-Bienko, 1948, Zapiski Leningradskogo sel'skokhoryaistvennogo instituta 5 134 (partly) —kozhevniki Tarbinskii, 1925, Konowia, IV 136, 140 Figure 2 (Chorthippus) Tarbinskii, 1927, Ann Mag Nat Hist, (9) XX 493 (Chorthippus) Uvarov, 1927a 80, 85, Figures 60, 67, 82 (Chorthippus) Berezhkov, 1937 44 62, Figure 40 (Chorthippus)

b (a). Antennae in the σ shorter, length of a single middle segment of the antenna 2-2.5 times greater than its greatest width. φ tegmina far from reaching the middle of the hind femora, sometimes they reach the distal end of the hind femora, then the length of a foveola is 2.5 times greater than its greatest width (Figure 1115), in f. macroptera the tegmina reach the distal ends of the hind femurs and the narrowest part of the interspace between the metasternal lobes is $2/3$ its length (Figure 1116).

501 c (d). σ pronotum anteriorly with almost parallel lateral carinae (Figure 1117). φ mesosternum with nearly quadrate interspace between the lobes, its narrowest part is equal to its length (Figure 1118). Length of body σ 14.3-17.8, φ 19.4-24.4 mm, tegmina σ 7.3-8.6, φ 7.8-10.2 mm, f. macroptera σ 13.1, φ 17.7 mm. —Southeastern Kazakhstan near Abakumovskoe, the banks of Lake Balkhash, Uch-tyube railroad station, between Oksu and Baskan, village of Mialy on the Il river, Tas-murun landmark on the Il, valley of the Il, Ilisk. (Type from Mialy)

. *8b. M. kozhevnikovii ilensis Mistshenko subsp. n
d (c). σ pronotum anteriorly with distinctly concave lateral carinae (Figure 1119). φ mesosternum with a wide interspace between the lobes, its narrowest part distinctly greater than its length (Figure 1120). Length of body σ 15.9-17.5, φ 18.3-23.2 mm, tegmina σ 7.9-8.6, φ 6.6-8.5 mm. —Eastern Kazakhstan village of Ak-chui and Uch-aral near Lake Ala-kul, West China, Sinkiang Emel river, Uzunagach, Mongolia Tsagan-Gol and Baidarik rivers. (Type from the village of Ak-chui)
. *8c. M. kozhevnikovii robustus Mistshenko subsp. n

—kozhevnikovii kozhevnikovii Bei-Bienko, 1948, Zapiski Leningradskogo sel'skokhoryaistvennogo instituta, 5 134 (partim).

16(15). Ventral aspect of front femur and front tibia in the σ with short isolated hairs. Hind tarsus in the φ with short first segment, its length considerably less than the length of the other 2 segments (Figure 1121). Length of body σ 20, φ 21 mm, tegmina σ 11.4 φ 7.5 mm. —Uzbekistan Fergana valley. *9. M. nudus (Um.)

Umnov 1931, Ent. Nachrichtenblatt V-89 (Chorthippus) Bei-Bienko, 1948, Zapiski Leningradskogo sel'skokhoryaistvennogo instituta 5 134

153. Genus Pezohippus B.-Bienko

Bei-Bienko, 1948, Zapiski Leningradskogo sel'skokhoryaistvennogo instituta 5 139

Head short. Eyes situated almost in the middle of the head. Vertex short. Foveolae narrow and long. Antennae in both sexes slender, not thickened in the apical part. Labium with small rounded outer lobes which do not resemble a beak and do not extend beyond the middle of the prosternum. Pronotum with distinct lateral carinae which are weakly concave in the anterior part; posterior transverse groove extends along behind the middle of the pronotum; posterior margin nearly straight. Tegmina strongly shortened, in the ♀ widely separated on the medio-dorsal line [or dorsum]; precostal field in the ♂ tegmina extending beyond the middle of the tegmina, in the ♀ it reaches its apex. Wings hardly indicated. Hind femora with rounded dorsal lobes. Hind tibia with a small ventral spur on the inner side, slightly larger than the dorsal spur on the same side. Metasternum in both sexes with separated lobes. Tympanal organ on the first abdominal tergite well developed, nearly horizontal. Posterior margin of the last tergite of the abdomen in the ♂ and the margins of the supraanal plate of the ♂ of the same color as the tip of the abdomen. Subgenital plate in the ♀ with a triangularly projecting posterior margin.

Only one species is known, living in southeastern Kazakhstan and in northern Kara-Kalpak.

- 1 (1). ♀ fastigium rounded. Tegmina in the ♂ hardly extending beyond the posterior margin of the third, in the ♀, of the first abdominal tergite; precostal field of ♂ tegmina narrow, nearly parallel-sided; the greatest width of the costal field of the ♂ tegmina twice more than the greatest width of the precostal field. Length of body ♂ 13.8-15.0, ♀ 19.5-20.0 mm; tegmina ♂ 4.6-6.0, ♀ 3.7-4.0 mm. —Southern Kazakhstan, northern Kara-Kalpak
 *1. P. callosus (Uv.)

Uvarov, 1926, EOs, II 339 (Chorthippus), Uvarov, 1927a-80, 84, Figure 64, 80-81 (Chorthippus).

154. Genus Stauroderus I. Bol.

I. Bolivar, 1897, Ann. Sci. Nat. Porto, IV:224, Kirby, 1914 97, 127 (partim), Bei-Bienko, 1930, Izvestiya Zapadno-Sibirskogo geograficheskogo obshchestva, VII:193, 211, Tarbinskii, 1940 25, 163, 172; Tarbinskii, 1948:113, 117. —Stenobothrus Jakobson, 1905:165, 177, 219 (partim); Obenberger, 1926-63, 75 (partim). —Stenobothrus subgen. Flagiophlebis Houlbert, 1927, Encycl. Sci., Thysanoceres, Dermapteres et Orthopteres, 2:94 (partim). —Chorthippus Uvarov, 1927a:58, 74 (partim).

Head short. Eyes situated nearly in the middle of the head. Vertex short. Foveolae narrow and long. Antennae in both sexes slender, without thickening in the apical part, extending beyond the posterior margin of the pronotum. Labium with small rounded outer lobes, which do not resemble a beak and do not extend beyond the middle of the prosternum. Pronotum with distinct lateral carinae which are strongly arcuately concave in the anterior part; posterior transverse groove extending somewhat in front of the middle of the pronotum; posterior margin projecting. Tegmina and wings well developed; precostal field of tegmen close to the base distinctly widened, then sharply narrowed and not extending far beyond its middle; costal and subcostal veins of the wing distinctly curved in the apical third; subcostal field of wing distinctly widened at the middle; radial vein of wing

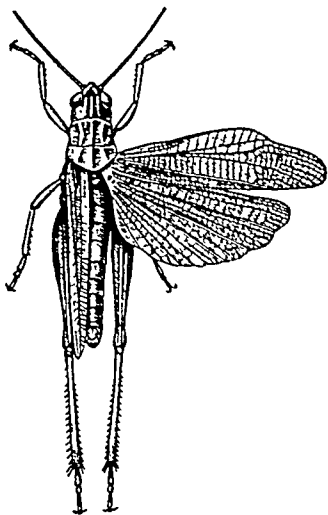


Figure 1122. Stauroderus scalaris scalaris
(F. -W.), ♂. (After Bei-Bienko)

strongly thickened in the apical third. Hind femora with rounded dorsal lobes. Hind tibia with a small ventral spur on the inner side, slightly larger than the dorsal spur on the same side. Prosternum with a smooth anterior margin. Metasternum in both sexes with separated lobes. Tympanal organ on the first abdominal tergite well developed, nearly vertical. Posterior margin of the last abdominal tergite in the ♂ and the margins of the supraanal plate in the ♂ of the same color as the tip of the abdomen. Subgenital plate in the ♀ with the posterior margin projecting forward.

Only one species is known, being distributed in western Europe, in the central and southern regions of the European part of the U. S. S. R., in the Caucasus, Kazakhstan, Siberia, Asia Minor, northern Mongolia, and in the mountains of Middle Asia.

- 1 (1). Tegmina in both sexes wide; length of ♂ tegmina 3 times, of ♀ tegmina 4 times more than the greatest width of a tegmen; subcostal and radial veins in the ♂ sharply curved in the apical half; costal, subcostal, and radial fields in the ♂ strongly widened; median field in both sexes strongly widened; cubital veins in both sexes slightly separated near the base, farther on they are fused.
..... *1. S. scalaris (F.-W.)

- a(b). ♀ tegmina usually extending beyond the distal end of the hind femora, sometimes just reaching it; subcostal field in the ♂ wide, its greatest width considerably greater than the width of the radial field at the base of the branching of the sector of radius. Length of body ♂ 17.8-20.3, ♀ 21.8-27.2, mm; tegmina ♂ 17.7-19.2, ♀ 17.8-20.3 mm. — Central and southern regions of the European part of the U. S. S. R., nearly all the Caucasus, Kazakhstan, nearly all of Siberia, mountains of Middle Asia; western Europe, Asia Minor, northern Mongolia. A serious pest of different cereal grasses and other cultivated crops. Also injures meadows and hay lands. (Figure 1122). *1a. S. scalaris scalaris (F.-W.)

—monie Charpentier, 1825, Hor. Ent. 1170, tab. 2, Figure 1 (Gryllus) (not Fabricius), Jakobson, 1905:179, 226, Plate IV (Stenobothrus). —scalaris Fischer-Waldheim, 1846:317, tab. XVI, Figure 5 (Oedipoda). Uvarov, 1927a:76, 80, Figure 68 (Chorthippus), Tarbinskii, 1940:26, 172, 224, Figures 147, 153, Tarbinskii, 1948:47, Figure 144. —melanopterus Borch, 1848, Skand. Ratv. Ins. 120, tab. 4, Figure 7 (Comphocerus). —discoidealis Evermann, 1848, Addit. quaedam levia ad Fischer de Waldheim Orth. Ross. 113 (Oedipoda), Jakobson, 1905:234 (Oedipoda).

Biology: Uvarov, 1927a:275, Figures 92, 93, Bel-Bienko, 1932b:16; Rubtsov, 1932c:12, Figures 4C, C. H. Predtechenski, Zhdanov, and Popova, 1935:80; Bel-Bienko, 1937:106, Zimin, 1938:36, 49, Plate III, Figure 16, Dovnar-Zapol'skii, 1940:245; Mishchenko, 1949b:155.

- b(a). ♀ tegmina far from reaching the distal end of the hind femora; subcostal field in the ♂ narrow, its greatest width equal to the width of the radial field at the base of the branching of the sector of radius. Length of body ♂ 19.5-21.6, ♀ 22.6-24.9 mm; tegmina ♂ 16.5-18, ♀ 13.3-15.0 mm. — Nakhichevan A. S. S. R.,
..... *1b. S. scalaris znojki Mlr.

155. Genus Chorthippus Fieb.

Fieber, in: Kelch, 1852, Grundlage zur Kenntniss der Orthopteren Oberfamilie 1, Fieber 1853 Letos III 100, Kirby, 1914 97, 128, Uvarov, 1927a-58, 74 (partim) Tarbinskii, 1940 26, 163, 173 Tarbinskii 1948 113 117. — Stenobothrus Jakobson, 1905 165, 177, 219 (partim) Shiraki 1910 5 22 (partim), Oberberger, 1926 63, 75 (partim). — Stauroderus Kirby, 1914 97, 127 (partim). — Megaulacothrus Caudell 1921, Proc. Ent. Soc. Wash., XIII, 2 27. — Stenobothrus subgen. Plagiophlebus Houbert, 1927, Encycl. Sci., Thysanoceres, Dermapteres et Orthopteres, 2 94 (partim).

Type of genus: Chorthippus albomarginatus (D. G. L.)

Head short. Eyes situated almost in the middle of the head. Vertex short. Foveolae long and narrow. Antennae in both sexes slender, not thickened in the apical part. Labium with small rounded outer lobes which do not resemble a beak and do not extend beyond the middle of the prosternum. Pronotum with distinct lateral carinae which are straight or concave in the anterior part, posterior transverse groove extending along in front of the middle, along the middle, or behind the middle, posterior margin projecting. Tegmina and wings either well developed or abbreviated, precostal field of tegmina near the base distinctly widened, then sharply narrowed and usually not extending far behind its middle, costal and subcostal veins of the wing straight, subcostal field of the wing not widened at the middle, radial vein of the wing slender, not thickened in the apical third. Hind femora with rounded dorsal lobes. Hind tibia with a small ventral spur on the inner side, slightly larger than the dorsal spur on the same side. Tarsi in both sexes with symmetrical claws, which are equal to each other. Metasternum in both sexes with separated lobes. Tympanal organ on the first abdominal tergite well developed, nearly vertical. Posterior margin of the last tergite of the abdomen in the ♂ and the margins of the anal plate in the ♂ of the same color as the tip of the abdomen. Subgenital plate in the ♀ with the posterior margin projecting. In rare cases the posterior margin is straight-truncate.

About 80 species are known, being distributed in Europe, North Africa, nearly all of Asia, and in North America†.

- 1 (6). Tegmina wide, extending beyond the distal end of the hind femora, length of a tegmen ♂, nearly 3.5 times, in the ♀ 4.5 times more than its greatest width, costal and subcostal veins in the ♂ strongly curved in an S-shape, subcostal and radial veins in the ♀ slightly curved. Subcostal field in the ♂ strongly widened, its greatest width is equal to, slightly less than, or slightly greater than the greatest width of the costal field (Figure 1123). Wings in the ♂ black, in the ♀ smoky, sometimes nearly black.
- 2 (5). Tegmina in the ♂ with a very wide subcostal field, its greatest width is equal to or distinctly greater than the greatest width of the costal field (Figure 1123), median field in the ♀ narrow, its greatest width is equal to or hardly greater than the greatest width of the cubital field (Figure 1124).
- 3 (4). ♂ tegmina with a wide radial field, its width near the base of the branching of the radial sector is 1.25-1.75 times greater than the

† Evidently Stauroderus hedickel Ramme (Ramme 1942, Mitt. Zool. Mus. Berlin XXV 333), also belongs to this genus. It was described from Roumania and unfortunately both it and its description remain unknown to me.

greatest width of the subcostal field (Figure 1123). Tegmina in the ♀ reaching or extending beyond distal end of hind femora. Hind femur in ♀ slender, length of a femur 5-5.5 times more than its greatest width. *1. Ch. aethalinus (Zub.) — Konek chernokrylyi (Black winged 'little horse' grasshopper).

a(d). Mesosternum with a wide space between the lobes; its narrowest part in the ♂ is 1.25, in the ♀ 1.25-1.50 times greater than its length; its greatest width in the ♂ is 1.25 times more than the narrowest part of the mesosternal lobe but in the ♀ it is equal to it or 1.5 times wider.

505 b(c). Foveolae in both sexes distinctly narrowed toward the fastigium and in the ♂ broadly separated near the fastigium; length of a pit in the ♂ 2.5-3 times greater than its greatest width. Frontal ridge in the ♀ wide; its width between the antennae 1/2 the width of the vertex between the eyes. ♂ antennae black. ♀ mesosternum with a wide interspace between the lobes; its narrowest part 1.5 times greater than its length and its greatest width 1.5 times more than the greatest width of a mesosternal lobe. Length of body ♂ 17-19.6, ♀ 22.0-25.8 mm; tegmina ♂ 16-19, ♀ 16.0-19.2 mm. — Southern Siberia from the Altai to the lower course of the Amur, northern Maritime Territory; North China; Manchuria. *1a. Ch. aethalinus aethalinus (Zub.)

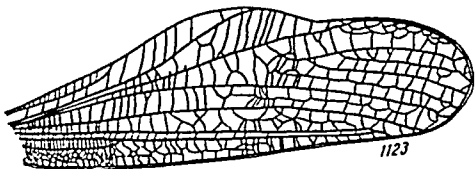
— aethalinus Zubovskii, 1899, Trudy Russkogo entomologicheskogo obshchestva, XXXII:600 (Stenobothrus), Jakobson, 1905:181, 231 (Stenobothrus subgen. Stawoderus); Uvarov, 1925c:53, 57 (Stawoderus), Tarbinskii, 1948:119. — fuliginosus Zubovskii, 1898, Ezhegodnik Zoologicheskogo muzeya Akademii Nauk, III 87 (Stenobothrus) (not Ivanov).

c(b). Foveolae in both sexes with nearly parallel margins and in the ♂ nearly contiguous near the fastigium; length of a pit in the ♂ 3-5.4 times greater than its greatest width. Frontal ridge in the ♀ narrow; its width between the antennae nearly 1/3 the width of the vertex between the eyes. ♂ antennae light. ♀ mesosternum with a narrower space between the lobes; its narrowest part 1.25 times more than its length, but its greatest width is equal to the greatest width of a mesosternal lobe. Length of body ♂ 16.5-17.5, ♀ 24.8 mm; tegmina ♂ 17.8-18.5, ♀ 20.1 mm. — Eastern Korea; Pung-tung near Kang-vendo

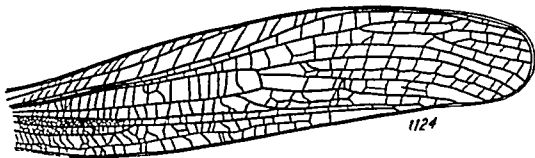
. 1b. Ch. aethalinus koreanus Mistshenko subsp. n.
d(a). Mesosternum with a narrow space between the lobes; its narrowest part in both sexes equal to or less than its length, and its greatest width distinctly narrower than the narrowest part of a mesosternal lobe. Length of body ♂ 17.4-18.4, ♀ 24.6 mm; tegmina ♂ 16.6-18, ♀ 18.2 mm. — Southern part of Maritime Territory 1c. Ch. aethalinus kongausensis (Caud.)

— kongausensis Caudell, 1927, Proc. U. S. Nat. Mus., LXXI, 7:3, Figure 1 (Megauliacobothrus).

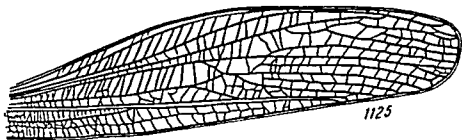
4 (3). Tegmina in the ♂ with a narrow radial field; its width near the base of the branching of the radial sector is nearly 2/3 the greatest width of the subcostal field. In the ♀ the tegmina do not reach



1123



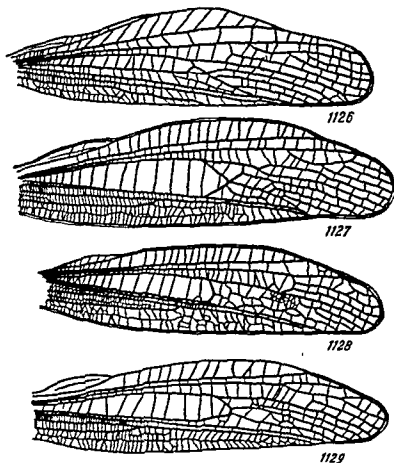
1124



1125

Figures 1123-1125
(Original)

1123—Chorthippus aethalinus aethalinus (Zub.), ♂, 1124—Ch. aethalinus koreanus Mistshenko subsp. n., ♀, allotype; 1125—Ch. chinensis Tarb., ♂, right tegmen.



Figures 1126-1129
(Original)

1126—Chorthippus biguttulus biguttulus (L.); 1127—Ch. apricarius apricarius (L.); 1128—Ch. apricarius apricarius (L.); 1129—Ch. apricarius asiaticus Mistshenko subsp. n., type.

the distal end of the hind femora. Hind femur in the ♀ stout, the length of a femur nearly 4 times more than its greatest width, (♀ according to Shiraki). Length of body ♂ 18.0-24.1, ♀ 22.0-23.5 mm, tegmina ♂ 16.0-19.2, ♀ 18.5-19.8 mm. — Korea, Japan. 2. Ch. latipennis (I. Bol.)

I. Bolivar, 1898, Ann. Mus. Civ. Stor. Nat. Genova XXXIX-83 (Stenobothrus) Jakobson, 1905:181, 230 (Stenobothrus subgen. Stauroderus), Shiraki, 1910 2, 31 (Stenobothrus) — fumatus Shiraki, 1910 2, 23, 25, tab. I, Figures 6, 6a, 6b, 6c (Stenobothrus)

- 5 (2). ♂ tegmina with a narrow subcostal field, its greatest width distinctly less than the greatest width of the costal field (Figure 1125), median field in the ♀ wide, its greatest width 1.5-2 times greater than the greatest width of the cubital field. Length of body ♂ 18.5-19.7, ♀ 24.4-25.7 mm, tegmina ♂ 15.6-17.9, ♀ 17.5-18.8 mm. — China Kansu, Szechwan. 3. Ch. chinensis Tarb.

506 Tarbinskii, 1927, Konowia VI 202, Figure 1 (Chorthippus (Stauroderus))

- 6 (1). Tegmina often strongly abbreviated, but if they extend beyond the distal end of the hind femora then they are always narrow, the costal and subcostal veins in the ♂ are straight or very slightly curved, the subcostal and radial veins in the ♀ nearly straight. Subcostal field in the ♂ weakly widened, its greatest width 1/3-2/3 the greatest width of the costal field (Figure 1126). Wings light in both sexes, sometimes faintly darkened, then the length of a tegmen in the ♂ 4.5-5 times, in the ♀ 5.5 times more than its greatest width.
- 7 (8). Tegmina in both sexes with strongly widened median field, its greatest width equal to or slightly greater than the width of the radial field, the subcostal field, and the costal field taken together along the same transverse line (Figure 1127-1129). . . . *4. Ch. apricarius (L.) — Konek buryi (Brown 'little horse' grasshopper).
- a(b). Tegmina in both sexes usually with the cubital veins separated only in the basal part, farther on the veins are fused (Figure 1127), sometimes the cubital veins are separated for nearly all the length of the median field, moreover making a distinct cubital field (Figure 1128), then either the antennae in both sexes are slender and the length of a single middle segment of the antenna 2-2 25 times more than its greatest width, or the tegmina in the ♀ do not reach the distal end of the hind femurs and the posterior transverse groove of the pronotum extends along the middle of the pronotum. Length of body ♂ 12.5-15.7, ♀ 16.1-19.5 mm, tegmina ♂ 10.2-11.6, ♀ 11.2-12.8 mm — Nearly all the European part of the U. S. S. R., northern Caucasus, Kazakhstan, southern Siberia, western Europe, Asia Minor (?), northern Mongolia, North China Manchuria (?). In Siberia it injures cereal grasses *4a Ch. apricarius apricarius (L.)

— apricarius Linnaeus 1758 Syst. Nat., Ed. X, 1433 (Cryllus Locusta) Jakobson, 1905:179, 226 (Stenobothrus subgen. Stauroderus) (partim) Obenberger, 1926 88, Figures 133 1616 (Stenobothrus subgen. Stauroderus) Uvarov, 1927a:77, 81 (Chorthippus subgen. Stauroderus) (partim) Tarbinskii 1940 26 174 (partim), Tarbinskii, 1948 118 (partim). — flavot Saulcy, 1887 Bull. Soc. Metz, (2), XVII 82 (Stenobothrus)

Biology: Bel-Bienko, 1932b:17 (partim), Rubtsov, 1932c:12, 13, Figures 3D, F, I, N, Predtechenskiĭ, Zhdanov, and Popova, 1935:89 (partim); Zimin, 1948:35, 50, Dovnar-Zapol'skii, 1940 225, 245.

- 508 b(a). Tegmina in both sexes always with the cubital veins separated for all the length of the median field; cubital field always distinct (Figure 1129). Antennae in both sexes stouter and the length of a single middle segment of the antenna 1.25-1.75 times more than its greatest width. ♀ tegmina reaching or extending beyond the distal end of the hind femora; but if sometimes the tegmina do not reach the distal end of the hind femora, then the posterior transverse groove of the pronotum extends along in front of or behind the middle of the pronotum.
- c(h). ♀ vertex without the median carina on the fastigium. ♂ pronotum with weakly concave lateral carinae in the middle part; its greatest width between the lateral carinae 1.5 times more than its narrowest part.
- d(g). Posterior transverse groove of the pronotum in both sexes extending along the middle or behind the middle of the pronotum; sometimes in the ♀ the posterior transverse groove of the pronotum runs in front of the middle of the pronotum, then the mesosternum has a narrow space between the lobes and the narrowest part of this space is equal to its length.
- e(f). ♀ tegmina usually not reaching or only reaching the distal end of the hind femur, sometimes the tegmina extend beyond the distal end of the hind femora, then the posterior transverse groove of the pronotum extends in front of the middle of the pronotum. ♂ mesosternum usually with a narrow space between the lobes; the narrowest part of the space is equal to its length; sometimes the space is wide and its narrowest part is hardly greater than its length, then the fastigium is right-angled or obtuse-angled. Length of body ♂ 14.5-16.7, ♀ 20.4-22.6 mm; tegmina ♂ 11.5-13.7, ♀ 13.9-15.8 mm. —Turkmenia: Chuli gorge [or pass] in the Kopet Dagħ [mts.], Farab; Uzbekistan, northern slope of the Hissar Range; Kzyl-tam, Khan-takhta landmark; southern Kirghizia, Bazar-Kurgan District: Ak-terek. (Type from Kzyl-tam). Injures cereal grasses on the slopes of the Hissar range and in southern Kirghizia. *4b. Ch. apricius asiaticus Mistshenko subsp. n.
- apricus Jakobson, 1905:179, 226 (Stenobothrus subgen. Stauoderus) (partim); Uvarov, 1927a:77, 81 (Chorthippus subgen. Stauoderus) (partim); Tarbinskiĭ, 1940:26, 174 (partim), Tarbinskiĭ, 1948 118 (partim).
- Biology: Bel-Bienko, 1932b:17 (partim); Predtechenskiĭ, Zhdanov, and Popova, 1935:89 (partim); Mishchenko, 1949b:156 (as Ch. apricius asiaticus Mistsh. and Ch. apricius hissaricus Mistsh.).
- f(e). ♂ tegmina always extending beyond the distal end of the hind femur. ♀ pronotum crossed by the posterior transverse groove only along the middle of the pronotum. ♂ mesosternum with a wide space between the lobes; the narrowest part of the space greater than its length (Figure 1131). ♂ vertex with acute-angular fastigium. Length of body ♂ 15.6-17.4, ♀ 21.5-21.8 mm; tegmina

♂ 12.2-13.7, ♀ 14.4-16.6 mm. —Northern Georgia: Teberda;
Kabardino-Balkarian ASSR: Musht mts. (Type from Musht mts.)
.....*4c. Ch. apricarius caucasicus Mistshenko subsp. n.

—apricarius Jakobson, 1905:179, 226 (Stenobothrus subgen. Stauoderus) (partim), Uvarov,
1927a:77, 81 (Chorthippus subgen. Stauoderus) (partim), Tarbinskii, 1940:26, 174 (partim), Tarbinskii, 1948:118 (partim).

- 509 g (d). Posterior transverse groove of the pronotum in both sexes extending in front of the middle of the pronotum (Figure 1130). Mesosternum in the ♀ with a wide space between the lobes, the narrowest part of the space distinctly greater than its length. Length of body ♂ 15.5-17.8, ♀ 16.6-25 mm; tegmina ♂ 12.3-16.5, ♀ 13.2-19.2 mm. —Nearly all the Caucasus, including southern Krasnodar Territory; eastern part of Asia Minor (!)
.....*4d. Ch. apricarius major (Pyln.)

—apricarius m. major Pyl'nov, 1914, Russkoe entomologicheskoe obozrenie, XIV 272 (Stenobothrus) —apricarius Jakobson, 1905:179, 226 (Stenobothrus subgen. Stauoderus) (partim), Uvarov, 1927a:77, 81 (Chorthippus subgen. Stauoderus) (partim), Tarbinskii, 1940:26, 174 (partim), Tarbinskii, 1948:118 (partim)

- h (c). ♀ vertex with a distinct median carina on the fastigium. ♂ pronotum with strongly concave lateral carinae in the middle part, its greatest width between the lateral carinae is twice more than its narrowest part (Figure 1132). Length of body ♂ 12.7-17.2, ♀ 22.8 mm; tegmina ♂ 12.1-13.5, ♀ 17.8 mm. —Stavropol' Territory: Stavropol'
.....*4e. Ch. apricarius ciscaucasicus Mistshenko subsp. n.

—apricarius Jakobson, 1905:179, 226 (Stenobothrus subgen. Stauoderus) (partim), Uvarov, 1927a:77, 81 (Chorthippus subgen. Stauoderus) (partim), Tarbinskii, 1940:27, 174 (partim), Tarbinskii, 1948:118 (partim).

- 8 (7). Tegmina in both sexes with weakly widened median field, its greatest width 1/3 to 2/3 the width of the radial, subcostal, and costal field, taken together along the same transverse line (Figure 1126).
9 (112). Hind femora in both sexes with a sharp dark oblique band near the base of the inner aspect, sometimes in the ♂ the band is weak, then either the hind tibiae are red or orange, or the cerci are black. Pronotum in both sexes with strongly arcuately or angularly concave lateral carinae in the anterior part (Figures 1133, 1134, 1137, 1142). If the distal end of the hind femur and the base of the hind tibia are black and the hind tibiae are yellow, then the mesosternum has a wide space between the lobes, the narrowest part of which is distinctly greater than its length.
10 (111). Tegmina in both sexes with weakly widened median field, its greatest width equal to or 1.25-2 times greater than the greatest width of the cubital field (Figures 1138, 1140, 1145, 1151), if sometimes it is 2.5-3 times greater than that field then the distal end of the hind femur and the base of the hind tibia are light or slightly darkened, or the fastigium of the ♂ is right-angled with arcuately concave lateral margins.

11(32). Tegmina in both sexes usually extending beyond the distal end of the hind femora sometimes only reaching or not quite reaching that end, then the wings are well developed; very rarely (only in Ch. bozdaghi Uv.) do the σ tegmina barely reach the tip of the abdomen, then the vertex has a wide parabolic fastigium. Median field of tegmina in both sexes narrow; its greatest width equal to or slightly greater than the greatest width of the cubital field (Figure 1126).

510 12(15). Pronotum in both sexes crossed by the posterior transverse groove distinctly behind the middle of the pronotum; length of the anterior part of the pronotum nearly 1.5 times greater than the length of its posterior part. σ vertex with a parabolic fastigium; its lateral margins arcuately projecting.

13(14). Foveolae in both sexes with curved dorsal and ventral margins. Vertex in both sexes with elongated parabolic fastigium. Pronotum in both sexes with distinctly projecting, although rounded, posterior margin. Tegmina in both sexes extending beyond the distal end of the hind femora. Length of body σ 14.5, φ 19 mm; tegmina σ 12, φ 13.5 mm. —Pakistan and India northward to Kashmir. (According to Uvarov). 5. Ch. indus Uv.

Uvarov, 1942, Eos, XVIII 98, Figure 2.

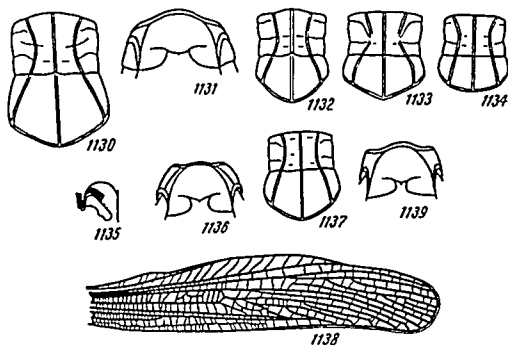
14(13). Foveolae in the φ with straight dorsal and ventral margins parallel to each other. Vertex in both sexes with a wide parabolic fastigium. Pronotum in both sexes with weakly projecting posterior margin. Tegmina in both sexes not reaching the distal end of the hind femora. Length of body σ 16, φ 19.7 mm; tegmina σ 10, φ 11.9–13.2 mm. —Asia Minor . . . 6. Ch. bozdaghi Uv.

Uvarov, 1934, Eos, X 86, Figure 24.

15(12). Pronotum in both sexes crossed by the posterior transverse groove in front of the middle or on the middle of the pronotum, rarely slightly behind it, then the σ vertex has an acute-angular fastigium, and its lateral margins are arcuately concave in the fastigial part; length of the anterior part of the pronotum at most, hardly longer than the posterior part of the pronotum.

16(31). Pronotum in the σ with nearly straight posterior transverse groove, but in the φ it usually extends far in front of or after the middle of the pronotum, sometimes it extends along the middle, then the pronotum has high lateral lobes, the greatest height of a lobe distinctly more than its own greatest width. Posterior part of pronotum wide; its length considerably less than its narrowest part between the lateral carinae.

17(30). Pronotum in both sexes crossed by the posterior transverse groove in front of or behind the middle of the pronotum; sometimes the groove extends along the middle, then the σ tegmina have a wide radial field, the greatest width of which (up to the base of the branching of the sector of radius) is distinctly more than the



Figures 1130-1139
(Original)

- 1130—Chorthippus apricarius major (Pyln.), ♀, pronotum from above, 1131—Ch. apricarius caucasicus Mistshenko subsp. n., ♂, type, mesothorax; 1132—Ch. apricarius ciscaucasicus Mistshenko subsp. n., ♂, type, pronotum from above; 1133—Ch. ingenitzkii (Zub.), ♂, pronotum from above; 1134—Ch. curtis Mistshenko sp. n., ♂, paratype, pronotum from above; 1135—Ch. brunneus brunneus (Thunb.), ♂, tympanal organ, 1136—Ch. brunneus brunneus (Thunb.), ♂, mesosternum; 1137—Ch. brunneus brunneus (Thunb.), ♂, pronotum from above; 1138—Ch. brunneus brunneus (Thunb.), ♂, right tegmen, 1139—Ch. brunneus miramae Rme., ♂, mesosternum.

greatest width of the subcostal field (Figure 1126); and in the ♀ the median field is narrow; its greatest width is equal to or hardly more than the greatest width of the cubital field.

- 18(19). Tympanal organ with a wide elliptical opening; the narrowest part of the opening is nearly 1/2 its height (Figure 904). Length of body ♂ 13.5-15.0, ♀ 16.5-22.0 mm; tegmina in the ♂ 10.5-13.0, ♀ 13.0-15.5 mm. Southern regions of the European part of the U. S. S. R., western Kazakhstan, western Europe, Asia Minor *7. Ch. vagans (Ev.)—Vagrant 'little horse' grasshopper [*Konek brodyachii*].

Eversman, 1848, Addit. quaedam levia ad Fischert de Waldheim Orth. Ross. 112 (*Oedipoda*); Brunner-Wattenwyl, 1882:103, 118 (*Stenobothrus*); Jakobson, 1905:181, 229, plate IV (*Stenobothrus* subgen. *Stauroderus*); Chopard, 1922:128, 150, Figure 372 (*Stauroderus*); Obenberger, 1926 91, Figure 14¹⁰ tab. II, Figure 95 (*Stenobothrus* subgen. *Stauroderus*); Tarbinskii, 1940:36; Tarbinskii, 1948 119. —*subsinuatus* Fischer, 1849, Jahresh. Mannh. Ver. Naturh., XV:42 (*Gomphocerus*). —*vagans* ab. *obacurus*, var. *atrata* and var. *rubicundus* Vorontsovskii, 1928, Izvestiya Orenburgskoi mantsii zashchity rastenii, (1927), 1:9 (*Stauroderus*).

Biology: Zimla, 1938:35, 55.

- 511 19(18). Tympanal organ with a narrow slit-like opening; the narrowest part of the opening is 2/9-2/7 its height (Figure 1135). Front legs in the ♂ sometimes with long dense hairs.
- 20(29). Mesosternum in both sexes with a narrow space between the lobes; its narrowest part considerably less than the narrowest part of the mesosternal lobe.
- 21(22). Pronotum in the ♂ always with a distinct median transverse groove, which intersects the lateral carinae; in the ♀ the posterior transverse groove runs distinctly behind the middle of the pronotum; the length of the anterior part of the ♀ pronotum is nearly 1.5 times greater than the length of the posterior part of the pronotum. Hind femur in the ♂ with a black distal end. Hind tibia in both sexes red. Length of body ♂ 16.0-20.1, ♀ 19.0-28.4; tegmina ♂ 12.0-16.2, ♀ 15.0-21.5 mm. Spain, France, Roumania; Dobruja (?) 8. Ch. binotatus (Charp.)

Charpentier, 1825, Hor. Ent. 1:58 (*Gryllus*); Brunner-Wattenwyl, 1882:102, 116 (*Stenobothrus*); Chopard, 1922:128, 149 (*Stauroderus*).

- 512 22(21). Pronotum in the ♂ with hardly indicated middle transverse groove, never intersecting the lateral carinae; in the ♀ the posterior transverse groove extends along in front of the middle or along the middle of the pronotum; the length of the anterior part of the ♀ pronotum is less than or equal to the length of the posterior part of the pronotum. Hind femur in the ♂ with a light or a faintly darkened distal end. Hind tibia in both sexes yellow or orange.
- 23(24). Mesosternum in both sexes with a narrow space between the lobes; its narrowest part less than or nearly equal to its length (Figure 1136). Pronotum in both sexes with strongly concave lateral carinae in the anterior part; its greatest width between

the lateral carinae 2.5-3 times greater than its narrowest part; posterior transverse groove in the σ always extending along far in front of the middle of the pronotum (Figure 1137) *9. Ch. brunneus (Thunb.)—Simple or duochromatic 'little horse' grasshopper [Konek obyknovennyi ili dvutsvetnyy].

- a (d). Tegmina in both sexes always extending beyond the distal end of the hind femora, apical part of σ tegmina slightly narrowed and produced, the anterior margin near the apex of the costal field with a notch (Figure 1138).
- b (c). Eyes in the σ usually small, vertical diameter of an eye 1.5 times greater than the subocular groove, sometimes twice greater, then the mesosternum has a narrow space between the lobes, its narrowest part is equal to its length (Figure 1136). φ tegmina with a distinct spurious median vein or with traces of it in the median and in the cubital fields. Length of body σ 14.5-18, φ 20-24 mm, tegmina σ 12.5-17.5, φ 16.8-21.0 mm. —Nearly all the European part of the U.S.S.R., the Caucasus, Siberia to Khabarovsk Territory, Kazakhstan, Turkmenia; North Africa, western Europe, Asia Minor, Iraq, northern Iran, northern Mongolia, North China (Manchuria), North America (?). May slightly injure cultivated plants in different parts of its areal. Moreover, it injures green fodder and hay land in the lower course of the Volga and meadows in Hungary *9a Ch. brunneus brunneus (Thunb.)

—brunneus Thunberg, 1815, Mem Acad Sci St-Petersb, V 249 (Cryllus) Ander, 1945, Ent. Tidskr., LXVI 157-162 —bicolor Charpentier, 1825 Hor Ent 161 (Cryllus) Brunner-Wattenwyl, 1882 103, 120, Figure 28G (Stenobothrus) Jakobson 1905 181, 231, plate IV (Stenobothrus subgen Stauroderus) (partim), Shtraki, 1910 2, 23 (Stenobothrus) (partim) Chopard, 1922 129, 150, Figures 353, 375, 377 (Stauroderus) (partim), Uvarov, 1927a 78, 82, Figure 70 (Chorthippus subgen Stauroderus) (partim), Miram, 1933:26, 30, Figure 32 (partim), Berezikov, 1937 41, 59, Figure 33 Tarbinskii, 1940 26, 174, 177 (partim), Tarbinskii, 1948 119 —biguttulus bicolor Obenberger, 1926 89, 90, Figures 16⁸, 18¹, 19² (Stenobothrus subgen Stauroderus) —bicolor ab rufulus, robustus, nigrosuperficies and porphyricus Vorontsovskii, 1928, Izvestiya Orenburgskoi stantsii zashchity rastenii, (1927), 111-12 (Stauroderus) —bicolor subsp Tarbinskii 1940 174, 178 Biology Bel-Bienko, 1932b 17, Predtechenskii, Zhdanov and Popova 1935 88 Zimin 1938 35, 55, Mishchenko, 1949b 156

- c (b). σ eyes large, vertical diameter of the eye twice greater than the subocular groove. σ mesosternum with a narrow space between the lobes; its narrowest part distinctly less than its length (Figure 1130). φ tegmina without any traces of a spurious vein in the median and in the cubital fields. Length of body σ 15.6-18.5, φ 19.5-23.7 mm, tegmina σ 14.5-15.7, φ 17.2-17.4 mm. —The Crimea, Chkalov Region (?) *9b. Ch. brunneus miramae Rme.

—miramae Ramme, 1939, Mit Zool. Mus Berlin, \\\IV:131
Biology: Zimin 1938:34 54

- 513 d (a). σ tegmina, and to all appearances, φ tegmina barely reach the distal end of the hind femora, apical part of σ tegmina not

narrowed and not produced, anterior margin near the apex of the costal field nearly straight, without a notch (Figure 1140). Apparently the dimensions are somewhat smaller than in typical C. brunneus brunneus (Thunb.). —Southern Finland (According to Klingstedt). 9c. Ch. brunneus brevis Kling.

—bicolor brevis Klingstedt, 1939, Journ. Gen., XXXVII:393, tab. XV, Figures 5, 11. —bicolor Uvarov, 1925c:53, 57 (Stauroderus) (partim).

24 (23). Mesosternum in both sexes with a wide space between the lobes, its narrowest part distinctly greater than its length (Figure 1141); if sometimes it equals it then the pronotum in both sexes has weakly concave lateral carinae in the anterior part, its greatest width between the lateral carinas twice more than its narrowest part and the posterior transverse groove in the ♂ extends along in the middle or nearly in the middle of the pronotum (Figure 1142).

25 (26). ♂ tegmina wide, usually extending beyond the distal end of the hind femora, the length of a tegmen in the ♂ 3.5–4.2 times more than its greatest width; sometimes the ♂ tegmina only reach the distal end of the hind femora, then the foveolae are narrow; the length of a pit 3 times more than its greatest width. Costal field of ♀ tegmina wide, its greatest width 1.5–2 times more than the greatest width of the subcostal field

. *10. Ch. biguttulus (L.) —Changeable 'little horse' grasshopper [Konek izmenchivyi].

- a (h). Tegmina in both sexes long, always extending beyond the distal end of the hind femora.
- b (c). ♀ tegmina in the apical part usually with one furcation issuing from the sector of radius (RS); the "field" between the radial vein and the sector of radius in both sexes without an additional spurious vein; if the spurious vein is present, then the median field is wide; its greatest width considerably more than the greatest width of the cubital field.
- d (d). ♂ tegmina with a distinct preapical notch on the anterior margin; subcostal field in the ♂ strongly widened for almost its whole length, its width at the apex of the median field is equal to or greater than the greatest width of the median field (Figure 1126); median and cubital fields in the ♀ with a distinct spurious median vein. Length of body ♂ 12.0–17.5, ♀ 15–22 mm; tegmina ♂ 9.5–14.0, ♀ 12–21 mm. —Nearly all the European part of the U. S. S. R., the Caucasus, Siberia, Kazakhstan; North Africa, western Europe, Asia Minor (?), Palestine (?), Iran (?), India (?), Mongolia (?). Slightly injures cereal grasses, hay lands, and meadows

. *10a. Ch. biguttulus biguttulus (L.)

—biguttulus Linnaeus, 1758, Syn. Nat., Ed. X, 1:433 (Gryllus Locusta). Brunner-Wattenwyl, 1882:103, 121 (Stenobothrus) (partim); Jakobson, 1905:182, 232 (Stenobothrus subgen. Stauroderus) (partim); Chopard, 1922:129, 151, Figure 376 (Stauroderus); Obenberger, 1926:89, 90, 91, Figure 193 (Stenobothrus subgen. Stauroderus). Uvarov, 1927a:78, 81, Figure 69 (Chorthippus subgen. Stauroderus) (partim); Mgram, 1933 27, 30 (partim); Berezikov, 1937:41, 59, Figures 31, 34, Tarbinskii, 1940:26 (partim); Tarbinskii, 1948:119. —lunulatus Scopoli, 1763, Ent. Carn 110 (Gryllus).

514 —mutabilis Panzer, 1804, Syst. Nomencl. Schiffer's Abbild. 211 (Gryllus) —notatus Tumbler, 1815, Mem. Acad. Sci. St.-Petersb., V:249 (Gryllus). —aureolus Zetterstedt, 1821, Orth. Suec. 297 (Gryllus). —asialis Burmeister, 1833, Handb. Ent., II 649 (Gomphoceris). —variabilis Fieber, in Kelch, 1852, Grundlage zur Kenntniss der Orthopteren Oberschlesiens I. —variabilis var. virescens, purpurascens, pratensis and nigrinus Ivanov, 1887, Trudy Obshchestva Ispytatelei prirody Khar'kovskogo universiteta, XXI 343 (Stenobothrus). —biguttulus montanus Obenberger, 1926 89 (Stenobothrus subgen. Stauroderus) (not Charpentier) —biguttulus collinus Obenberger, 1926 89 (Stenobothrus subgen. Stauroderus). —biguttulus var. robustus, ab. rubiginosus and ab. polychlorus Vorontsovskii, 1928, Izvitiya Orenburgskoi s'antil' zashchity rastenii, (1927), I:10 11 (Stauroderus)

Biology: Bel-Bienko, 1932b 17; Rubtsov, 1942c 12, 14, Figures 2A, 3A, E, K, M Predtechenskii, Zhdanov, and Popova, 1935 88, Zimin, 1935 35, 36, 55, Mikhchenko, 1949b 156 (partly)

- d (c). ♂ tegmina with hardly perceptible preapical notch on the anterior margin; subcostal field in the ♂ strongly widened only in the apical part, its width at the apex of the median field 1/2-2/3 the greatest width of the median field (Figure 885), median and cubital fields in the ♀ without a spurious median vein or with only indistinct traces of that vein. Length of body ♂ 15.5-18.6, ♀ 20.3-26.5 mm, tegmina ♂ 11.4-16.1, ♀ 16.6-19.7 mm. —Mountains of Uzbekistan and Kirghizia, Tadzhikistan, northern Afghanistan. Slightly injures alfalfa, vegetables, and volatile-oil-bearing plants in Tadzhikistan.
*10b. Ch. biguttulus meridionalis Mistsh.

Mistshenko, 1950, Doklady AN SSSR (novaya seriya), LXXI, 4 789, 790, Figure 11 —biguttulus Uvarov, 1927a 78, 81 (Chorthippus subgen. Stauroderus) (partly), Tarbinskii, 1940.26 (partly)

- e (b). ♀ tegmina in the apical part with 2 furcations issuing from the radial sector (RS), but if they have one furcation then the field [or cell] included between the radial vein and the radial sector has an additional spurious vein. ♂ tegmina usually with an additional spurious vein between the radial vein and the radial sector, sometimes without it, then the median field is narrow, its greatest width equal or nearly equal to the greatest width of the cubital field.
- f (g). ♀ tegmina without a median spurious vein in the median field or only with traces of it. ♀ ovipositor with hardly notched ventro-outer margin of the ventral valves (Figure 1143). ♂ mesosternum with a wide space between the lobes; its greatest width equal to or more than the greatest width of the mesosternal lobe. Length of body ♂ 16.5-18.6, ♀ 25.9-28.7 mm, tegmina ♂ 14.6-17.9, ♀ 21.2-21.6 mm. —South Khabarovsk Territory, mouth of the Taba River and Lake Kizi on the lower course of the Amur, village of Sofinskoe on the Amur, Lake Bolon' Odzhal on the lower course of the Amur, Nizhne-Tambovskoe on the Amur, Khabarovsk, Maritime Territory. Voroshilov, Krivoi Klyuch, Khor river near the mouth of the Boulya, Vladivostok, railroad stations of Okeanskaya, Vinogradovka, Yakovlevka, Tigrovaya Gora, Botcha and Kou rivers on the Sikhote Alin' Range, Kamen'-Rybolov on Lake Khanka, island of Askol'd, Kamenushka landmark of Shkotoovo District; Kamchatka (?), Southern Sakhalin Rakuma,

Kuriles: Kunashiri Island; evidently Korea and Japan. (Type from Krivoi Klyuch).
*10c. Ch. biguttulus maritimus Mistshenko subsp. n.

—biguttulus Jakobson, 1905:182, 232 (Stenobothrus subgen. Stauoderus) (partim); Uvarov, 1925c:53, 56 (Stauoderus) (partim); Uvarov, 1927a:78, 81 (Chorthippus subgen. Stauoderus) (partim); Miram, 1933:27, 40 (partim); Tarbinskii, 1940:26 (partim).

515 g (f). ♀ tegmina with a distinct median spurious vein in the median field, sometimes without it, then the ovipositor has a sharp tooth on the ventro-outer margin of the ventral valve. (Figure 1144). ♂ mesosternum with a narrow space between the lobes; its greatest width considerably less than the greatest width of the mesosternal lobe. Length of body ♂ 13.8-16.7, ♀ 20.4-25.2 mm; tegmina ♂ 12.6-14.5, ♀ 16.6-18.2 mm. —Georgia: Sukhumi
*10d. Ch. biguttulus eximius Mistshenko subsp. n.

—biguttulus Jakobson, 1905:182, 232 (Stenobothrus subgen. Stauoderus) (partim); Uvarov, 1925c:53, 56 (Stauoderus) (partim); Uvarov, 1927a:78, 81 (Chorthippus subgen. Stauoderus) (partim); Miram, 1933:27, 30 (partim); Tarbinskii, 1940:26 (partim).

h (a). Tegmina in both sexes shorter, hardly reaching the distal end of the hind femurs. Eyes in the ♀ large; vertical diameter of the eye always distinctly greater than the subocular groove. ♂ tegmina with a wide costal field; its greatest width nearly twice more than the greatest width of the subcostal field. Length of body ♂ 13.5-14.6, ♀ 16.8-21.2 mm; tegmina ♂ 11.2-12.8, ♀ 12.6-14.5 mm. —Mountains of southern Uzbekistan, southern Kirghizia and Tadzhikistan; western China
*10c. Ch. biguttulus pamiricus (Rme.)

Ramme, 1930, Mitt. Zool. Mus. Berlin, XVI 211, tab. I, Figures 1, 3 (Stauoderus).

26(25). ♂ tegmina usually long and narrow, the length of a tegmen 4.6-5.5 times more than its greatest width (Figure 1145); sometimes they are short and wide, reaching only the distal end of the hind femora, then the foveolae are short; the length of a pit is 2-2.5 times more than its greatest width. Costal field in the ♀ narrow; its greatest width barely more than or 1.25 times more than the greatest width of the subcostal field.

27(28). ♂ tegmina with a wide costal field, its greatest width 1.5 times more than the greatest width of the median field; in the ♀ the costal field is narrow, its greatest width 2/3 the greatest width of the median field. The median field of a ♂ tegmen is narrow, its greatest width equal to the greatest width of the cubital field (Figure 1145). *11. Ch. mol-

lis (Charp.)—Small 'little horse' grasshopper [Konek malyi].
 a (b). Foveolae in both sexes long and narrow; the length of a pit 2.75-3.5 times more than its greatest width (Figure 1146). Tegmina in both sexes extending beyond the distal end of the hind femora; the length of a ♂ tegmen is 3.6-5.5 times more than its greatest width. Length of body ♂ 13.4-17.1, ♀ 17.6-19.2 mm;

tegmina ♂ 10.7-13.1, ♀ 12.6-15.6 mm. — Nearly all the European part of the U. S. S. R., the Caucasus, Siberia, Kazakhstan, Middle Asia; western Europe, Asia Minor, northern Iran. Slight damages to winter grains have been reported in Kubyshhev Region
 *11a. Ch. mollis mollis (Charp.)

—mollis Charpentier, 1825, Hor Ent 164 (Gryllus) Uvarov, 1927a 78, 82, Figure 71 (Chorthippus subgen. Stauroderus) Miram, 1933 27, 31, Berezhkov, 1937 41, 59, Figure 35, Tarbinskii 1940 26, 174, 177, Tarbinskii, 1948 119. —biguttulus Brunner-Wattenwyl, 1882 103, 121 (Stenobothrus) (partim), Jakobson, 1905:182 232 (Stenobothrus subgen. Stauroderus) (partim). —biguttulus mollis Obenberger, 1926 81, Figure 191 (Stenobothrus subgen. Stauroderus) —mollis var. porphyroptera Vorontsovskii, 1928, *Izvestiya Orenburgskoi statitsii zashchity rastenii*, (1927), I 12 (Stauroderus).
 Biology: Predtechenskii, Zhdanov, and Popova, 1935 68, Zimna, 1938 35, 56.

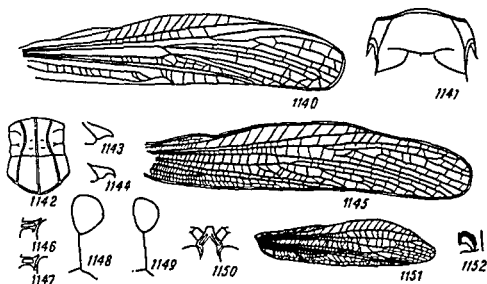
- 516 b (a). Foveolae in both sexes wider and shorter, the length of a pit 2-2.25 times more than its greatest width (Figure 1147). Tegmina in both sexes reaching only the distal end of the hind femora, the length of a tegmen in the ♂ 3.5-4.2 times more than its greatest width. Length of body ♂ 13.8-16.3, ♀ 20.6-20.9 mm, tegmina ♂ 11.2-12.8, ♀ 14.2-17.4 mm. — Northern Iran: Elburz mts.
 11b. Ch. mollis elbursianus Mistshenko subsp. n.
 28 (27). ♂ tegmina with a narrow costal field, its greatest width hardly more than the greatest width of the median field, in the ♀ the costal field is wide, its greatest width equal to the greatest width of the median field. The median field of the ♂ tegmina is wide, its greatest width considerably more than the greatest width of the cubital field. Length of body ♂ 15-16, ♀ 20-22 mm, tegmina ♂ 13-15, ♀ 17-18 mm. — China: Shantung, Kiangsu.
 12. Ch. shantungensis Chang.

Chang, 1939, Notes Entom. Chinoise, VI, 12.

- 29 (20). Mesosternum in both sexes with a wide space between the lobes, its narrowest part equal to or slightly greater than the narrowest part of a mesosternal lobe. *13. Ch. hirtus Uv.
 a (f). ♂ tegmina with a distinct spurious longitudinal vein in the pre-costal field, median field in the ♀ narrow, its greatest width 1.5 times more than the greatest width of the cubital field, cubital field in the ♀ with a distinct spurious longitudinal vein.
 b (eO) Eyes in both sexes large, vertical diameter of the eye in the ♂ 1.25-1.5 times greater than the subocular groove, and in the ♀ equal to it (Figure 1148).
 c (d). ♀ pronotum without lateral carinae in the anterior part, posterior transverse groove in the ♂ extending along the middle of the pronotum. Length of body ♂ 18.5, ♀ 22.5, tegmina ♂ 12.5, ♀ 13.0 mm. — Dagestan: Rutul *13a. Ch. hirtus hirtus Uv.

—hirtus Uvarov, 1927, Ann. Mag. Nat. Hist., (9), XX:192, Figure 1 (Chorthippus subgen. Stauroderus), Tarbinskii, 1940 26

- d (c). ♀ pronotum with distinct lateral carinae in the anterior part, obsolete only in the middle of the pronotum, posterior transverse



Figures 1140-1152

(No. 1140 modified after Klingstedt; 1151 after Uvarov; others original)

1140—Chorthippus brunneus brevis Kling., ♂, right tegmen; 1141—Ch. biguttulus biguttulus (L.), ♀, mesosternum; 1142—Ch. mollis mollis (Charp.), ♂, pronotum from above; 1143—Ch. biguttulus maritimus Mistshenko subsp. n., ♀, paratype, left ventral valve [lower notch] of ovipositor from side; 1144—Ch. biguttulus eximius Mistshenko subsp. n., ♀, paratype, left ventral valve [lower notch] of ovipositor from side; 1145—Ch. mollis mollis (Charp.), ♂, right tegmen; 1146—Ch. mollis mollis (Charp.), ♂, left foveola; 1147—Ch. mollis elbursianus Mistshenko subsp. n., ♂, type, left foveola; 1148—Ch. hirtus riparius Mistshenko subsp. n., ♀, allotype, left type; 1149—Ch. hirtus tarlensis Mistshenko subsp. n., ♀, type, left eye; 1150—Ch. hirtus kurushiensis Mistshenko subsp. n., type, vertex from above; 1151—Ch. ilkazi Uv., ♂, right tegmen; 1152—Ch. satynini Mistshenko sp. n., ♂, type, tympanal organ.

groove in the σ extending distinctly before the middle of the pronotum. Length of body σ 13.5-16.1, φ 19.3-23.2 mm, tegmina σ 10.2-11.9, φ 11.5-14.4 mm. —Dagestan Akhty, village of Loroda (Type from Akhty)

- *13b. Ch. hirtus riparius Mistshenko subsp. n.
 e (b). Eyes in the φ small, vertical diameter of a φ eye distinctly less than the subocular groove (Figure 1149). σ unknown. Length of body φ 17.8, tegmina 12.3 mm. —Dagestan northern slopes of Tarkı-tau mts. near Makhachkala.
 *13c. Ch. hirtus tarkiensis Mistshenko subsp. n.
 f (a). σ tegmina without spurious longitudinal vein in the precostal field, the median field in the φ wide, its greatest width twice more than the greatest width of the cubital field, sometimes only 1.5 times greater than it, then the cubital field of the tegmina is without the spurious longitudinal vein.
 517 g (h). σ vertex narrow, its width before the eyes equal to its lateral margin (Figure 1150). φ tegmina with a distinct spurious median vein in the median and cubital fields, median field in the φ wide, its greatest width twice more than the greatest width of the cubital field. Length of body σ 12.6-14.4, φ 15.4-19.4 mm, tegmina σ 10.3-11.6, φ 19.6-12.6 mm —Dagestan Kurush.
 *13d. Ch. hirtus kurushensis Mistshenko subsp. n.
 h (g). σ vertex wide, its width before the eyes greater than its lateral margin. φ tegmina without the spurious median vein in the median and cubital fields, the median field in the φ narrow, its greatest width 1.5 times greater than the greatest width of the cubital field. Length of body σ 13.5-13.6, φ 17.5 mm, tegmina σ 8.7-9.5, φ 12 mm. Dagestan Bazar-Dyuzı and Shalbuз-Dag mts, *13e Ch. hirtus debilis Uv.

Uvarov, 1927, Ann Mag Nat Hist (9) XX 194 (Chorthippus subgen Stauroderus) Tarbin
 skii 1940 26

- 30(17). Pronotum in both sexes crossed by the posterior transverse groove in the middle of the pronotum. σ tegmina with a narrow radial field, its greatest width (to the place of branching off of the radial sector) nearly equal to the greatest width of the subcostal field (Figure 1151), median field in the φ wide, its greatest width more than twice more than the greatest width of the cubital field. Length of the body σ 13.5, φ 20 mm, tegmina σ 10, [φ] 12.5 mm. —Asia Minor (From Uvarov) 14 Ch. ilkazı Uv
 518

Uvarov, 1934, Eos, X 84, Figure 23

- 31(16). Posterior transverse groove of σ pronotum strongly arcuately curved in the middle, swelling out toward the anterior margin but in the φ it extends along the middle of the pronotum, length of posterior part of σ pronotum distinctly greater than its greatest width between the lateral margins. Lateral lobes of φ pronotum nearly quadrate, the greatest height of a lobe is equal to the

greatest width of that same lobe. Length of body ♂ 14, ♀ 17 mm; tegmina ♂ 10.5, ♀ 12.5 mm. —Karakorum. (From Salfi)
 15. Ch. caporiaccoi Salfi.

Salfi, 1934, Ann. Mus. Zool. R. Univ. Napoli, (Nuova Serie), VI, 11:5, Figures 3-4.

- 32 (11). Tegmina in both sexes usually far from reaching the distal end of the hind femora, sometimes in the ♀ it hardly extends beyond their middle. Wings greatly abbreviated, usually hardly developed. Sometimes in the ♂ the tegmina nearly reach the tip of the abdomen or even extend beyond it (C. pullus Phil.) and the wings are significantly developed, then either the fastigium is acute-angular or the tegmina have a wide median field, the greatest width of which is twice more than the greatest width of the cubital field. In C. macrocerus (F.-W.) f. macroptera, the tegmina and the wings in both sexes well developed but then the tegmina have a wide median field the greatest width of which 2-3 times more than the greatest width of the cubital field.
- 33 (106). Pronotum in both sexes with distinct entire lateral carinae which are only sometimes obliterated in the median part, then the tympanal organ on the first abdominal tergite has a narrow slit-like opening (Figure 1152).
- 34 (43). Tympanal organ with a narrow slit-like opening (Figure 1152).
- 35 (40). ♀ pronotum anteriorly with lateral carinae bent at an angle (Figure 1153); in the ♂ the posterior transverse groove extends far behind the middle of the pronotum. ♀ tegmina without spurious longitudinal vein in the costal field. Hind tibiae in the ♂ yellow or brown. Mesosternum with a wide space between the lobes; its narrowest part 1.5-1.75 times greater than its length.
- 36 (39). ♂ tegmina with the apical part not produced, the greatest width of the ♂ tegmina is located near the apex (Figure 1155); median field in the ♀ wide, its greatest width twice more than the greatest width of the cubital field; cubital field in the ♀ without the spurious longitudinal vein. Wings in the ♂ nearly 1/2 the length of the tegmina.
- 37 (38). ♂ tegmina with a narrow median field; its greatest width nearly equal to the greatest width of the cubital field (Figure 1154). Hind femora in the ♂ short and stout; the length of a femur 3.2 times more than its greatest width. ♀ unknown. Length of body ♂ 11.4, tegmina 7.1 mm. —Northeastern Turkey: Oltu
 16. Ch. satunini Mistshenko sp. n.
- 38 (37). Tegmina in both sexes with a wide median field; its greatest width 1.5-2.0 times more than the greatest width of the cubital field. Hind femora in both sexes well proportioned and long; length of femurs nearly 4 times greater than their greatest width. Length of body ♂ 11.3-12.0, ♀ 14.5-15.6 mm; tegmina ♂ 6.4-7.5, ♀ 4.5-6.1 mm. —Northwestern Iran: Savalan
 17. Ch. savalanicus Uv.
- 519

Uvarov, 1933, Trudy Zoologicheskogo instituta AN SSSR, (1932), 1:192, Figure 1.

- 39(36). σ tegmina with distinctly produced apical part, the greatest width of a σ tegmen is situated at its middle (Figure 1155), median field in the φ narrow, its greatest width equal to or slightly greater than the greatest width of the cubital field, cubital field in the φ with a distinct longitudinal spurious vein. Wings in the σ hardly shorter than the tegmina. Length of body σ 12.8-14.7, φ 12.8-20.3 mm, tegmina σ 7.3-10.2, φ 7.2-12.2 mm —Southeastern European part of the U. S. S. R., Georgia (?), Siberia, northern and eastern Kazakhstan, Mongolia, North China, including Manchuria. *18. Ch. dubius (Zub.)
—Narrow-winged 'little horse' grasshopper [Konek uzkokryly].

Zubovskii, 1898, Ezhegodnik Zoologicheskogo muzeya Akademii Nauk, III 85 (Stenobothrus)
Jakobson 1905 181, 230 (Stenobothrus subgen Stauroderus) Uvarov, 1927a 78, 82 [Chorthippus subgen Stauroderus] Berezikov, 1937:41, 60 83 Tarbinskii, 1940 36, Tarbinskii 1948 118 —
cognatus Brunner-Wattenwyl, 1882 103, 119 (Stenobothrus) (partim). —harvathi I Bolivar in
Zichy, 1901, Dritte asiatische Forschungsreise, II 231 (Stenobothrus) Jakobson, 1905 180, 227 (Steno-
bothrus subgen Stauroderus)
Biology Zimin, 1938 37 53

- 40(35). φ pronotum in the anterior part with arcuately curved lateral carinae (Figure 1156). φ tegmina with a distinct spurious longitudinal vein in the costal field. Hind tibiae in the σ red. Mesosternum in the σ with a narrow space between the lobes, its narrowest part equal to its length, sometimes distinctly greater, then the posterior transverse groove of the pronotum runs along its middle.
- 41(42). Lateral carinae in the anterior part of the pronotum in both sexes entire, not crossed by the anterior transverse groove. σ tegmina with a short precostal field, not extending beyond the middle of the tegmina. σ mesosternum with a narrow space between the lobes, its narrowest part nearly equal to its length. Length of body σ 13.8-15.2, φ 17.8-21.3 mm, tegmina σ 7.7-9.3, φ 8.6-10.4 mm. —Southern Kazakhstan, northern Uzbekistan Injures pastures in the Karzhan-tau mts. . *19. Ch. hemipterus Uv.

Uvarov, 1926, Eos, II 334 (Chorthippus subgen. Stauroderus) Uvarov 1927a 78 82, Figure
73 (Chorthippus subgen Stauroderus)
Biology Mishchenko 1949b 157

- 42(41). Lateral carinae in the anterior part of the pronotum in both sexes interrupted, intersected by the anterior transverse groove. σ tegmina with a long precostal field, extending far beyond the middle of the tegmina. σ mesosternum with a wide space between the lobes, its narrowest part 1.5 times greater than its length. Length of body σ 12.9-17.2, φ 16.9-23.4 mm, tegmina σ 7.4-8.3, φ 7-8.7 mm. —Southern Krasnodar Territory Chugush mts (!) and Achushko mts. (!), Abkhazia . *20 Ch. abchasicus Rme.

- 520 43(34). Tympanal organ with a wide semicircular opening (Figure 1157).
- 44(45). Eyes in both sexes large; the vertical diameter of the σ eye twice as great and, of the φ eye 1.5 times greater than the subocular groove. Mesosternum in both sexes with a narrow space between the lobes; its narrowest part equal to or hardly more than its length. Hind femur in both sexes with a light distal end. Hind tibiae in both sexes with a light base . . . *21. Ch. macrocerus (F.-W.)—Feelered 'little horse' grasshopper [Konek usaty].
- a (d). Vertex in the σ with acute-angular, in the φ with right-angular or triangular fastigium, sometimes in the φ it becomes rounded, then either the pronotum in the anterior part has strongly curved lateral carinae (Figure 1158) or the tegmina have a rare venation in the median field.
- b (c). σ tegmina with a narrow median field, its greatest width 1.75-2.25, in f. macroptera 2-3 times greater than the greatest width of the cubital field; median field in the φ with dense venation. Mesosternum in the φ with a narrow space between the lobes, its narrowest part equal to its length. Length of body σ 13.3-18.0, φ 27.0 mm; tegmina σ 9.2-12.0, φ 7.4-11.2 mm; f. macroptera tegmina σ 12.1-15.1, φ 15.2-19.5 mm.—The Caucasus; Asia Minor, Iraq, northern Iran. Sometimes in Nakhichevan ASSR it injures high-mountain crops and hay fields *21a. Ch. macrocerus macrocerus (F.-W.)

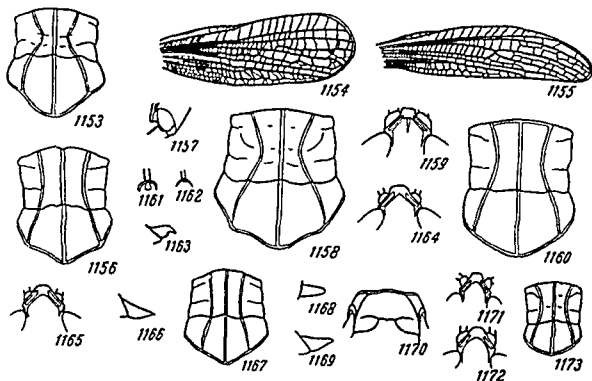
—macrocerus Fischer-Waldheim, 1846:331 (Oedipoda), Jakobson, 1905:234 (Oedipoda).—macrocerus Uvarov, 1927a:78, 82, Figure 71 (partim); Tarbinskii, 1940 26, 174, 175, Figure 143² (partim); Tarbinskii, 1948:118, Figure 142B (partim).—cognatus Fieber, 1853, Lotos, II-103, Jakobson, 1905:181, 229 (Stenobothrus) (partim).—? daganus Ramme, 1926, Deutsche Ent. Zeitsch.:275, tab. II, Figure 4 (Stauroderus).

Biology: Bel-Bienko, 1932b:19, Zimin, 1948:36, 52, plate IX, Figure 52, Dovnar-Zapol'skii, 1940:229, 246.

- c (b). σ tegmina with a wide median field, its greatest width 4.0-4.5 times more than the greatest width of the cubital field (f. macroptera not yet known in this subspecies); median field in the σ with sparse venation. Mesosternum in the φ with a wide space between the lobes, its narrowest part greater than its length. Length of body σ 11.6-14.9, φ 18.5-19.8 mm; tegmina σ 7.9-10.3, φ 7.3-8.5 mm.—Southern half of the European part of the U.S.S.R., western and northern Kazakhstan *21b. Ch. macrocerus purpuratus (Vor.)

—cognatus Jakobson, 1905:181, 229 (Stenobothrus) (partly).—macrocerus Uvarov, 1927a:78, 82 (partly), Tarbinskii, 1940 26, 174, 175 (partim); Tarbinskii, 1948:118 (partim).—cognatus ab. purpurata and var. nigrescens and nigrolineata Voronovskii, 1928, Izhvitiya Orenburgskoi stantsii zashchity rastenii, (1927), 19 (Stauroderus).

- d (a). Vertex in both sexes with rounded fastigium (Figure 1159). Pronotum in the φ in the anterior part with weakly curved lateral carinae (Figure 1160). φ tegmina with dense venation in the median field.



Figures 1153-1173
(Original)

1153—Chorthippus dubius (Zub.), ♀, pronotum from above, 1154—Ch. satunini Mistshenko sp. n., ♂, type, right tegmen, 1155—Ch. dubius (Zub.), ♂, right tegmen 1156—Ch. hemipterus Uv., ♀, pronotum from above, 1157—Ch. cavilosus cavilosus Mistshenko sp. et subsp. n., ♂, paratype, tympanal organ, 1158—Ch. macrocerus macrocerus (F.-W.), ♀, pronotum from above, 1159—Ch. macrocerus ponticus Mistshenko, subsp. n., ♀, allotype, vertex from above, 1160—Ch. macrocerus assimilis Mistshenko subsp. n., ♀, allotype, pronotum from above, 1161—Ch. strelkovi strelkovi B.-Bienko, ♂, tip of left hind tarsus, 1162—Ch. similis Um., ♂, tip of left hind tarsus, 1163—Ch. cavilosus cavilosus Mistshenko sp. et subsp. n., ♀, allotype, left ventral valve of ovipositor from side, 1164—Ch. cavilosus cavilosus Mistshenko sp. et subsp. n., ♀, allotype, vertex from above, 1165—Ch. cavilosus ornatus Mistshenko sp. et subsp. n., ♀, allotype, vertex from above, 1166—Ch. monilicornis Um., ♀, left ventral valve of ovipositor from side, 1167—Ch. vicinus vicinus Mistshenko sp. et subsp. n., ♂, type, pronotum from above, 1168—Ch. vicinus directus Mistshenko sp. et subsp. n., ♂, type, pronotum from side, 1169—Ch. vicinus abusivus Mistshenko sp. et subsp. n., ♀, allotype, left ventral valve of ovipositor from side, 1170—Ch. vicinus alaficus Mistshenko sp. et subsp. n., ♂, type, mesosternum, 1171—Ch. vicinus abusivus Mistshenko sp. et subsp. n., ♂, type, vertex from above, 1172—Ch. vicinus amplius Mistshenko sp. et subsp. n., ♂, type, vertex from above, 1173—Ch. karateghinicus Mistshenko sp. n., ♂, type, pronotum from above.

- e (f). Tegmina in both sexes with a narrow median field; its greatest width in the σ 1.25 and in the φ twice more than the greatest width of the cubital field. Length of body σ 13.7-15.4, φ 20.2-22.6 mm; tegmina σ 7.1-8.1, φ 7.9-8.7 mm. —Krasnodar Land: Nebug village near Tuapse, Gelendzhik (type from Nebug village)
 521 *21c. Ch. macrocerus ponticus Mistshenko subsp. n.
- f (e). Tegmina in both sexes with a wide median field; its greatest width 3 times more than the greatest width of the cubital field. Length of body σ 14.2-17.6, φ 17.6-21.3 mm; tegmina σ 9.6-12.4, φ 7.3-9.7 mm. —Eastern Kazakhstan: Balkhash; southern Turkmenia; settlement Tumanovskii of the Ashkhabad District (Type from Tumanovskii).
 *21d. Ch. macrocerus assimilis Mistshenko subsp. n.

—macrocerus Uvarov, 1927a:78, 82 (partim); Tarbinskii, 1940 26, 174, 175 (partim); Tarbinskii, 1948:118 (partim).

- 522 45 (44). Eyes in both sexes small; vertical diameter of an eye in the σ 1.5 times greater, in the φ equal to, less than, or hardly greater than the subocular groove. Mesosternum in both sexes with a wide space between the lobes; its narrowest part 1.5-2 times more than its length, sometimes in the σ it is only slightly greater than that length, then the distal end of the hind femur and the base of the hind tibia are black.
- 46 (49). Tarsus with a large empodium between the claws, distinctly extending beyond the middle of the claws (Figure 1161).
- 47 (48). Foveolae in both sexes not narrowed toward the fastigium. Posterior transverse groove of the pronotum in both sexes extending along distinctly in front of the middle of the pronotum; length of the posterior part of the pronotum considerably greater than the length of the anterior part; the greatest width of the pronotum between the lateral carinae is twice more than its narrowest part *22. Ch. strelkovi B.-Bienko.
- a (b). Foveolae in the φ short; the length of a pit 2.5 times more than its greatest width. Pronotum in both sexes with distinct lateral carinae in the middle part. Mesosternum in the φ with a wide space between the lobes; its narrowest part 1.5 times more than its length. Metasternum in the σ with a narrow space between the lobes; its narrowest part nearly 1/2 its length. Length of body σ 15.4-17.3, φ 23.4-24.5 mm; tegmina σ 9.9-10.1, φ 5.9-7.1 mm; f. macroptera tegmina σ 16.4-17.3, φ 18.2-19.5 mm. — Southern Sakhalin. . . *22a. Ch. strelkovi strelkovi B.-Bienko.

—strelkovi Bel-Bienko, 1949, Entomologicheskoe obozrenie, XXX:314, Figures 3-5.

- b (a). Foveolae in the φ long; the length of a pit 3 times more than its greatest width. Pronotum in both sexes with lateral carinae obsolete in the middle part. Mesosternum in the φ with a narrow space between the lobes; its narrowest part hardly more than its length. Metasternum in the σ with a wide space between the lobes;

its narrowest part 1.5 times greater than its length. Length of body ♂ 16.3-17.6, ♀ 21.7-22.4 mm, tegmina ♂ 8.0-10.3, ♀ 6.3-6.7 mm. —Kurils: Island of Kunashiri. *22b. Ch. strelkovi saltator B. -Bienko.

Bel-Bienko, 1949, Entomologicheskoe obozrenie, XXX 315, Figure 6

- 48 (47). ♂ foveolae distinctly narrowed toward the fastigium ♂ pronotum intersected by the posterior transverse groove clearly on the middle of the pronotum, length of the posterior part of the pronotum equal to the length of the anterior part; the greatest width of the pronotum between the lateral carinae is 1.5 times more than its narrowest part. ♀ unknown. Length of body ♂ 15, tegmina 8.5 mm. —Kurils: Island of Etorofu (Iturup). *23. Ch. kurilensis B. -Bienko.

Bel-Bienko, 1948, Zapiski Leningradskogo sel'skokhozyaistvennogo instituta, 5 136, 138, Figure 106

- 523 49 (46). Tarsus with a small empodium between the claws which does not reach by far the middle of the claws (Figure 1162), rarely it just reaches their middle.
- 50(105). ♂ antennae slender, the length of a separate median segment of the antenna is considerably greater than its greatest width, sometimes it is equal to it, then the greatest width of the pronotum between the lateral carinas is twice more than the narrowest part. ♂ pronotum in the posterior part with distinct lateral carinae.
- 51 (78). Pronotum in both sexes with strongly concave lateral carinae in the middle part, the greatest width of the pronotum between the lateral carinae twice more than its narrowest part, sometimes only in the ♂ is it 1.75 times greater than that part, then the posterior transverse groove extends along the middle of the pronotum.
- 52 (50). Pronotum in both sexes intersected by the posterior transverse groove distinctly behind the middle of the pronotum, length of the anterior part of the pronotum distinctly more than the length of posterior part of the pronotum.
- 53 (56). Tegmina in both sexes distinctly narrowed toward the apex, the greatest width of a tegmen is situated in its middle or in its basal third; the median field narrow, its greatest width equal to the greatest width of the cubital field.
- 54 (55). ♀ antennae long and slender, longer than the length of the head and pronotum together, length of a separate middle segment of the antenna twice more than its greatest width. ♂ tegmina with a short precostal field, reaching its middle. Length of body of ♂ 16.25-17.00, ♀ 21-22 mm, tegmina ♂ 6.6-7.0, ♀ 7.6-8.0 mm —China Szechwan (According to Chang). 24. Ch. chapini Chang.

Chang, 1939, Notes Entom. Chinoise, VI, 1 : 5, tab. II, figs. 2, 5, 10, tab. III, figs. 3 6

- 55 (54). ♀ antennae short and stout, shorter than the length of the head and pronotum together, median segments of the antenna nearly quadrate.

♂ tegmina with long precostal field, extend far beyond its middle. Length of body ♂ 15.5, ♀ 17-19 mm; tegmina ♂ 6.75-8.3, ♀ 7.0-7.2 mm. —China: Szechwan (According to Chang).
 25. Ch. grahami Chang.

Chang, 1937, Notes Entom. Chinoise, IV, 8:178, tab. IV, Figures 3-5.

- 56(53). ♂ tegmina (the ♀ is unknown) distinctly widened toward the apex, the greatest width of a tegmen is situated in the middle of its apical half; median field wide; its greatest width considerably more than the greatest width of the cubital field.
- 57(58). ♂ antennae long and slender; the length of a separate median segment of the antenna twice more than its greatest width. ♂ pronotum with a distinct median transverse groove, intersecting the lateral carinae which are nearly parallel in the posterior part. Hind femur of the ♂ with a dark distal end. Hind tibia in the ♂ with a darkened base. ♀ unknown. Length of body ♂ 12, tegmina 6 mm. —China: Dzungaria. 26. Ch. songoricus B.-Bienko.

Bel-Bienko, 1936, Ann. Mag. Nat. Hist., (10), XVIII:296, Figure 3.

- 524 58(57). ♂ antennae short and stout; the length of a separate middle segment of the antenna 1.5 times more than its greatest width. Pronotum of the ♂ with a weak median transverse groove, not intersecting the lateral carinae which are distinctly divergent toward the posterior margin in the posterior part. The hind femur in the ♂ with a light distal end. Hind tibia in the ♂ with a light base. Length of body ♂ 11, tegmina 6.5 mm. —Nakhichevan ASSR
 *27. Ch. pygmaeus (B.-Bienko).

Bel-Bienko, 1931, Bol. R. Soc. Esp. Hist. Nat., XXXI:223, Figures 3-4 (Dasyhippus); Tarbinski, 1940 26.

- 59(52). Pronotum in both sexes intersected by the posterior transverse groove entirely or almost along the middle of the pronotum; the length of the anterior part of the pronotum equal to or nearly equal to the length of its posterior part.
- 60(69). Hind tibia in both sexes with a black base; sometimes in the ♀ it is only weakly darkened, then the ovipositor has a distinct median notch on the ventro-outer margin of the ventral valves (Figure 1163). ♂ tegmina always with a narrow radial field, its greatest width 1.5 times more than the greatest width of the subcostal field.
- 61(66). Antennae long in both sexes; the length of a separate middle segment of the ♂ antenna is 2.0-2.5 times, of a ♀ antenna 1.5 to twice greater than its greatest width.
- 62(65). ♂ pronotum in the anterior part with arcuately-concave lateral carinae; the length of the posterior part of the pronotum in the ♂ 1.5 times more than its narrowest part between the lateral carinae, but in the ♀ it is 2/3 its greatest width between the lateral carinae. ♀ metasternum with a wide space between the lobes; its width 1.5 times more than its length.

- 63(64). Hind femur in both sexes with a yellow ventral aspect. Hind tibia in both sexes orange, ♂ abdomen with a brownish tip. Length of body ♂ 15.4-16.0, ♀ 20.4-23.5 mm, tegmina ♂ 8.2-8.4, ♀ 7.4-7.5 mm. —Dzungarian Ala Tau. *28. Ch. saxatilis B.-Bienko.

Bel-Bienko 1948, Vestnik AN Mazakhskoj SSR, 8 (41) 39, Figure 2

- 64(63). Hind femur in both sexes with reddish ventral aspect. Hind tibia in both sexes red. ♂ abdomen with a reddish tip. Length of body ♂ 15.0-18.5, ♀ 20-23 mm, tegmina ♂ 8.0-8.6, ♀ 6.0-7.3 mm. —South-eastern Kazakhstan Ketmen' range *29. Ch. ketmenicus B.-Bienko.

Bel-Bienko, 1949, Doklady AN SSSR (Novaya seriya), LXXIV, 2.268, Figure 1

- 65(62). ♂ pronotum in the anterior part with sharp angularly concave lateral carinae; the length of the posterior part of the pronotum in the ♂ nearly equal to its narrowest part between the lateral carinae, but in the ♀ it is 1/2 the greatest width between the lateral carinae. ♀ metasternum with a quadrate space between the lobes. Length of body ♂ 13.8-15.1, ♀ 15.8-17.2 mm, tegmina ♂ 7.3-7.6, ♀ 5.0-6.6 mm. —Mts. of southeastern Kazakhstan and northern Kirghizia *30. Ch. ingenitzkii (Zub.)

—ingenitzkyi Zubovskii 1898, Ezhegodnik Zoologicheskogo muzeya Akademii Nauk, III 82 (Stenobothrus) Jakobson, 1905 180, 228 (Stenobothrus subgen. Stauroderus) Uvarov, 1927a:79, 83 (Chorthippus subgen. Stauroderus)

- 525 66(61). Antennae in both sexes short, the length of a separate middle segment of the ♂ antenna is 1.5 times greater, but in the ♀ it is equal to or hardly greater than its greatest width.
- 67(68). ♀ foveolae short, the length of a pit 2.5 times more than its greatest width. ♂ mesosternum with a narrow space between the lobes, its narrowest part distinctly less than the narrowest part of the mesosternal lobe. ♀ metasternum with a wide space between the lobes, its greatest width significantly more than its length. Length of body ♂ 13.7-15.4, ♀ 20.4-21.2 mm, tegmina ♂ 8.2-8.5, ♀ 6.4-7.5 mm. —Southeastern Kazakhstan Terskei Ala Tau *31. Ch. kuznetzovi B.-Bienko.

—kuznetzovi Bel-Bienko, 1949, Entomologicheskoe obozrenie, XXX 318, Figure 1

- 68(67). ♀ foveolae long, the length of a pit 3 times more than its greatest width. ♂ mesosternum with moderately wide space between the lobes, its narrowest part is equal to the narrowest part of the mesosternal lobe. ♀ metasternum with a narrow space between the lobes, its greatest width is equal to or hardly less than its length *32. Ch. cavilosus Mistshenko sp. n.
- a (b). Vertex in both sexes distinctly projecting forward, its fastigium obtuse angular, not rounded (Figure 1164). Hind femur in the ♂ with a yellow ventral part on the outer aspect. ♂ abdomen with

- a brownish tip. Length of body ♂ 11.7-13.8, ♀ 15.6-17.7 mm; tegmina ♂ 6.3-8.1, ♀ 6.8-7.3 mm. —Kirghizian Ala Tau; Chai-sandyk *32a. Ch. cavilosus cavilosus Mistshenko subsp. n.
- b (a). Vertex in the ♀ and often in the ♂ shorter; its fastigium in the ♀ always and in the ♂ sometimes rounded (Figure 1165). Hind femur in the ♂ usually with a reddish ventral part of the outer aspect. ♂ Abdomen often with a reddish, more rarely with a brownish or yellow tip. Length of body ♂ 11.7-15.4, ♀ 15.3-17.4 mm; tegmina ♂ 6.3-7.3, ♀ 4.6-6.3 mm. —Kirghizian Ala Tau; Cholo-ter, gorge of the Tuyuk, the River Alamedyn, Shamsi; Susamyr-tau; the river Kerdzhailyak (type from the Alamedyn). *32b. Ch. cavilosus ornatus Mistshenko subsp. n.
- 69(60). Hind tibia in both sexes with a light base; if sometimes it is slightly darkened, then in the ♂ the tegmina have a wide radial field, the greatest width of which is 3 times more than the greatest width of the subcostal field, and in the ♀ the ovipositor has a nearly straight ventro-external margin on the ventral valves (Figure 1166).
- 70(77). Antennae in both sexes short and stout; length of a separate middle segment of the ♂ antenna 1.25-2 times greater, in the ♀ equal to or 1.25-1.5 times greater than its greatest width.
- 71(74). Antennae in the ♀ very short and stout; the length of a separate middle segment of the antenna equal to or hardly greater than its greatest width. ♂ cerci short; the length of one of them 1.5 times more than its greatest width.
- 72(74). Eye in the ♀ small; the vertical diameter of an eye distinctly less than the subocular groove and hardly greater than the horizontal diameter. ♂ tegmina with a wide radial field; its greatest width 3 times more than the greatest width of the subcostal field. Hind tibia in the ♂ with a dark base. Length of body ♂ 9.8-10.0, ♀ 11.8 mm; tegmina ♂ 5.0-5.3, ♀ 4.2 mm. —Kirghizia: Bol'shoi Kara-kudzhur River *33. Ch. similis Um.

—Umnov, 1930, Ent. Nachrichtenblatt, III:70 [Chorthippus (Stauroderus)].

- 73(72). Eye in the ♀ large; vertical diameter of the eye distinctly greater than the subocular groove and 1.5 times greater than the horizontal diameter. ♂ tegmina with a narrow radial field; its greatest width twice more than the greatest width of the subcostal field. Hind tibia in the ♂ with a light base. Length of body ♂ 10.5-12.5, ♀ 12.5-15.2 mm; tegmina ♂ 6.3-7.2, ♀ 4.7-5.0 mm. —Kirghizia: Bol'shoi Kara-kudzhur River . . *34. Ch. tianshanicus Um.

—tianshanicus Umnov, 1930, Ent. Nachrichtenblatt, III:68 [Chorthippus (Stauroderus)].

- 74(71). ♀ antennae longer and more slender; the length of a separate middle segment of the antenna 1.5 times more than its greatest width. ♂ cerci longer; the length of one of them twice more than its greatest width.
- 75(76). ♂ antennae slender; the length of a separate middle segment of the antenna twice more than its greatest width. ♂ pronotum with the

lateral carinae extending smoothly over from the anterior to the posterior part. ♂ tegmina with a distinct venation in the costal field. ♀ ovipositor with a distinct preapical notch on the ventro-outer margin of the ventral valves. Length of body ♂ 11.9-16.5, ♀ 16.0-19.5 mm, tegmina ♂ 6.3-8.0, ♀ 5.0-6.5 mm. —Dzungarian Ala Tau *35. Ch. oreophilus B. -Bienko.

Bei-Bienko, 1948, Vestnik AN Kazakhskoi SSR, 8(41) 40, Figure 1

- 76 (75). ♂ antennae stouter, the length of a separate middle segment of the antenna 1.5 times greater than its greatest width. Lateral carinae of the ♂ pronotum before the posterior transverse groove distinctly shifted, situated more close together than right behind that groove. ♂ tegmina with dense venation in the costal field. ♀ ovipositor with nearly straight ventro-outer margin on the ventral valves (Figure 1166). Length of body ♂ 9.0-10.5, ♀ 19.1 mm, tegmina ♂ 8.6-8.9, ♀ 7.3 mm. —Kirghizia: Terskei Ala Tau Ridge. Pest of high-mountain pastures. *36. Ch. monilicornis Um.

Umnov, 1931, Ent. Nachrichtenblatt, V:98 [Chorthippus (Stauroderus)]

Biology: Bei-Bienko, 1932b 19 [Chorthippus sp.] Predtechenski, Zhdanov, and Popova, 1935 129 [Chorthippus sp.] Mishchenko, 1949b:157

- 77 (70). Antennae in both sexes long and slender, the length of a separate middle segment in both sexes 2.5-3 times more than its greatest width. ♀ ovipositor with a distinct preapical notch on the ventro-outer margin of the ventral valves. Length of body ♂ 13.4-16.1, ♀ 18.4-20.7 mm, tegmina ♂ 6.2-8.4, ♀ 7-9 mm. —Uzbekistan Chatkal Ridge *37. Ch. antennalis Um.

Umnov, 1931, Ent. Nachrichtenblatt, V:95 [Chorthippus (Stauroderus)].

- 78 (51). Pronotum in both sexes with the middle part having weakly concave lateral carinae, the greatest width of the pronotum between the lateral carinae 1.5 times more than its narrowest part (Figure 1167), posterior transverse groove in the ♂ sometimes extending along behind the middle of the pronotum.
- 527 79(102). Tegmina in both sexes longer, the length of the ♂ tegmina 3-4, in the ♀ 2.4-4 times more than its greatest width.
- 80 (83). ♂ cerci long, the length of one of them twice more than its greatest width (Figure 1168). ♂ tegmina reaching the tip of the abdomen. Hind tibia in the ♂ with a black base ♀ ovipositor with nearly straight ventro-outer margin of the ventral valves (Figure 1169).
- 81 (82). ♀ antennae short and stout, the length of a separate middle segment of the antenna equal to or hardly more than its greatest width. ♂ pronotum intersected by the posterior transverse groove on the middle of the pronotum, length of the anterior part of the pronotum equal to the length of its posterior part (Figure 1167). ♂ cerci black *38. Ch. vicinus Mistshenko sp. n.

- a (b). ♀ pronotum intersected by the posterior transverse groove distinctly behind the middle of the pronotum. ♀ tegmina distinctly middle narrowed toward the apex, with sparse venation; the median field narrow; its greatest width slightly more than the greatest width of the cubital field. ♂ mesosternum with a wide space between the lobes; its greatest width twice more than its length. Length of body ♂ 14.0, ♀ 20.6 mm; tegmina ♂ 7.5, ♀ 7.6 mm. —Kirghizia, Fergana Ridge: Kug-art
- *38a. Ch. vicinus vicinus Mistshenko subsp. n.
- b (a). ♀ pronotum intersected by the posterior transverse groove usually along the middle; sometimes this groove extends distinctly behind the middle of the pronotum, then the ♀ tegmina are hardly narrowed toward the apex, with a dense venation; median field wide, its greatest width twice more than the greatest width of the cubital field. ♂ mesosternum with a narrower space between the lobes; its greatest width 1.5 times more than its length (Figure 1170).
- c (h). Antennae in both sexes long and slender; the length of a separate middle segment of the antenna in the ♂ 1.5-2 times, in the ♀ 1.25 to twice greater than its greatest width.
- d (g). ♂ vertex with acute-angular fastigium (Figure 1171). ♂ antennae shorter and stouter; the length of a separate middle segment of the antennae 1.5 times more than its greatest width. ♀ pronotum intersected by the posterior transverse groove distinctly behind the middle of the pronotum.
- e (f). ♂ tegmina with a distinct longitudinal spurious vein in the pre-costal field; costal field in the ♂ narrow, its greatest width hardly more than the greatest width of the precostal field. The ♀ is unknown. Length of body ♂ 15.1, tegmina 7.9 mm. —Kirghizia: north slopes of Alai Ridge
- *38b. Ch. vicinus alajicus Mistshenko subsp. n.
- f (e). ♂ tegmina without a longitudinal spurious vein in the precostal field; costal field in the ♂ wide, its greatest width in the ♂ twice, in the ♀ hardly greater than the greatest width of the precostal field. Length of body ♂ 13.4, ♀ 23.4 mm; tegmina ♂ 7.4, ♀ 7.3 mm. —Southern Kirghizia, Bazar-Kurgan: Gave river
- *38c. Ch. vicinus abusivus Mistshenko subsp. n.
- 528 g (d). ♂ vertex with a rounded fastigium (Figure 1172). ♂ antennae long; the length of a separate middle segment twice more than its greatest width. ♀ pronotum intersected by the posterior transverse groove exactly on the middle of the pronotum. Length of body ♂ 15.2, ♀ 18.6-20.4 mm; tegmina ♂ 8.8, ♀ 6.5-7.9 mm. —Kirghizia, Fergana Ridge: Managel'dy River.
- *38d. Ch. vicinus amplius Mistshenko subsp. n.
- h (c). ♂ antennae short and stout; the length of a separate middle segment equal to its greatest width or hardly more than it. ♀ unknown. Length of body ♂ 13.4, tegmina 6.5 mm. —Western Kirghizia, Uzun-akhmat-tau Ridge: Chon-kum-bel'
- *38e. Ch. vicinus directus Mistshenko subsp. n.
- 82 (81). ♂ antennae long and slender; the length of a separate middle segment of the antenna 1.5-twice more than its greatest width. ♂

pronotum intersected by the posterior transverse groove far behind the middle of the pronotum, the length of the anterior part of the pronotum considerably more than the length of its posterior part. σ cerci light. Length of body σ 14.0-14.7, φ 17.9-20.3 mm, tegmina σ 8, φ 6.5-7 mm. — Eastern Uzbekistan, Fergana District Arslanbob . . . *39. Ch. ferghanensis Um.

Umnov, 1931, Ent. Nachrichtenblatt, V 93 [Chorthippus (Stauroderus)]

- 83 (80). σ cerci short, the length of a cercus 1.5 times more than its greatest width, sometimes it is twice more than this width, then either the tegmina reach only the middle of the abdomen or the hind tibia have a weakly darkened base. φ ovipositor with a distinct notch on the ventro-outer margin of the ventral valves.
- 84 (93). Hind tibia in both sexes with a light base, which only sometimes in the σ is hardly darkened. φ eyes large, the vertical diameter of the eye equals or distinctly more than the subocular groove.
- 85 (90). Pronotum in both sexes intersected by the posterior transverse groove in the middle or nearly in the middle of the pronotum; the length of the anterior part of the pronotum is equal to or nearly equal to the length of the posterior part thereof, sometimes in the σ the posterior transverse groove extends distinctly along behind the middle of the pronotum, then the cerci are long, the length of one of them twice more than its greatest width.
- 86 (87). σ pronotum intersected by the posterior transverse groove distinctly behind the middle of the pronotum (Figure 1173). φ tegmina without a spurious longitudinal vein in the narrow precostal field, the greatest width of which is $1/2-2/3$ the greatest width of the costal field, radial field in the σ narrow, its greatest width equal to or nearly equal to the greatest width of the subcostal field. Length of body σ 13.5-14.1, φ 18.3-19.8 mm, tegmina σ 5.7-5.8, φ 4.8-5.3 mm. — Tadzhikistan, Peter I mts. Gardan-i-kaftar, valley of the Kara-shur, and of the Gursy-tash. (Type from Gardan-i-kaftar). . . . *40. Ch. karateghinicus Mistshenko sp. n.
- 87 (86). σ pronotum intersected by the posterior transverse groove exactly in the middle of the pronotum (Figure 1174), seldom slightly behind it, then the tegmina have a wide radial field the greatest width of which is twice more than the greatest width of the subcostal field. φ tegmina with a distinct spurious longitudinal vein in the wide precostal field, the greatest width of which almost equals the greatest width of the costal field.
- 529 88 (89). Eyes in both sexes small, the vertical diameter of an eye in the σ hardly more than the the horizontal diameter, in the φ it is equal to the subocular groove. Foveolae in the φ short, the length of a pit 2.25-2.5 times greater than its greatest width. φ tegmina very short, far from reaching the middle of the hind femora. σ metasternum with a wide space between the lobes, its width equal to its length (Figure 1175). Length of body σ 13.4-14.5, φ 19.5-19.7 mm, tegmina σ 5.9-6.4, φ 5.3-6.1 mm. — Tadzhikistan, Darvaz ridge Sary-zakh-bursi, Viskharvi-bole. (Type from Sary-zakh-bursi) *41. Ch. darvazicus Mistshenko sp. n.

- 89 (88). Eyes in both sexes large, the vertical diameter of an eye in the ♂ 1.5 times more than the horizontal diameter, and in the ♀ it is distinctly greater than the subocular groove. Foveolae in the ♀ long; the length of a pit is 3 times more than its greatest width. ♀ tegmina longer, reaching the middle of the hind femora. ♂ metasternum with a narrow space between the lobes; its width 2/3 its length (Figure 1176). Length of body ♂ 16.3, ♀ 16.6-18.5 mm; tegmina ♂ 7.6, ♀ 7.8-8.3 mm. —Eastern Uzbekistan, Naman-gan District: Pasha-ata. *42. Ch. badius Mistshenko sp. n.
- 90 (85). Pronotum in both sexes intersected by the posterior transverse groove far behind the middle of the pronotum; the length of the anterior part of the pronotum distinctly greater than the length of the posterior part. ♂ cerci short; the length of one of them 1.5 times more than its greatest width.
- 91 (92). ♀ foveolae wide and deeply impressed; the length of a pit 2.5 times more than its greatest width. ♀ tegmina long, extending distinctly beyond the middle of the hind femora; the length of a tegmen 4.5 times more than its greatest width. Hind tibia in the ♀ dirty-white. ♀ metasternum with a narrow space between the lobes; its greatest width equal to its length (Figure 1177). The ♂ is unknown. Length of body ♀ 16.7, tegmina 7.1 mm. —Amur Region: Greater Shantar Islands. *43. Ch. shantariensis Mistshenko sp. n.
- 92 (91). Foveolae in the ♀ narrow and weakly impressed; the length of a pit 3 times more than its greatest width. Tegmina in both sexes short, not reaching or barely reaching the middle of the hind femora; length of a tegmen 3-3.5 times more than its greatest width. Hind tibia in both sexes reddish or red. ♀ metasternum with a wide space between the lobes; its greatest width considerably greater than its length *44. Ch. plotnikovi Um.
- a (b). ♀ vertex with an obtuse-angular fastigium. ♂ antennae slender; the length of a separate middle segment of the antenna twice more than its greatest width. ♂ mesosternum with a narrow space between the lobes; its narrowest part 1.5 times more than its length. Length of body ♂ 11-12, ♀ 15.2-16.5 mm; tegmina ♂ 4.8-5.2, ♀ 4.5 to 6.0 mm. —Southern Kazakhstan: Ak-tash. *44a. Ch. plotnikovi plotnikovi Um.
- plotnikovi Umnov, 1931, Ent. Nachrichtenblatt, V 91 [Chorthippus (Stauroderus)].
- b (a). ♀ vertex with an acute-angled fastigium. ♂ antennae stouter; the length of a separate middle segment of the antenna 1.25-1.5 times more than its greatest width. ♂ mesosternum with a wide space between the lobes; its narrowest part twice more than its length (Figure 1178). Length of body ♂ 10.4-12.6, ♀ 13.7-18.6 mm; tegmina ♂ 4.6-6.7, ♀ 4.1-5.6 mm. —Southeastern Kazakhstan, Karzhan-tau mts.; the Su-singan River. *44b. Ch. plotnikovi viriatus Mistshenko subsp. n.
- 530 98 (84). Hind tibiae in both sexes with a black base, sometimes in the ♂ it is slightly darkened, then the eyes are small, the vertical diameter of an eye distinctly less than the subocular groove.

- 94 (101). σ tegmina with a distinct spurious vein in the precostal field, very rarely it is hardly perceptible, then the antennae are stout, the length of a separate middle segment of the antenna 1.25-1.5 times more than its greatest width. Cubital field in the φ tegmina narrow, its greatest width considerably less than the greatest width of the median field. Hind femur in the φ with a yellow ventral aspect.
- 95 (100). Hind tibia in both sexes yellow.
- 96 (99). Vertex in both sexes wide, its width between the eyes 2.5-3 times more than the width of the frontal ridge between the antennae.
- 97 (98). Antenna in both sexes long and slender, the length of a separate middle segment of the antenna in the σ twice, in the φ 1.5 times, more than its greatest width. σ tegmina with a wide median field, its greatest width 1.5 times more than the greatest width of the cubital field, the costal and median fields in the φ with traces of a spurious vein. σ metasternum with a wide space between the lobes; its width 1.5 times more than its length. Supraanal plate in the σ nearly flat, wide, its length nearly equal to its greatest width (Figure 1179). Length of body σ 17.8, φ 23.7 mm, tegmina σ 8.2, φ 7.4 mm. — Tadzhikistan, western Darvaz Zagara mts. ridge. *45. Ch. tadzhicus Mistshenko sp. n.
- 98 (97). Antennae in both sexes short and stout, the length of a separate middle segment of the antenna in the σ 1.5 times, in the φ 1.25 times more than its greatest width. σ tegmina with a narrow median field, its greatest width equal to the greatest width of the cubital field, the costal and median fields in the φ without any traces of the spurious vein. φ metasternum with a narrow space between the lobes, its width equal to its length. Supraanal plate in the σ with a distinct groove in the basal part, narrow, its length distinctly more than its greatest width (Figure 1180). Length of body σ 13.7, φ 19.7 mm, tegmina σ 5.7, φ 5.6 mm. — Zeravshan mt. ridge, Zeravshan glacier.
- *46. Ch. pavlovskii Mistshenko sp. n. †
- 99 (96). Vertex in both sexes narrow, its width between the eyes twice more than the width of the frontal ridge between the antennae (Figure 1181). Length of body σ 15.4-16.1, φ 18.7-21.4 mm, tegmina σ 5.3-6.5, φ 6.2-6.6 mm. Western part of Turkestan mts. Guralash game reserve.
- *47. Ch. jachontovi Mistshenko sp. n. ††
- 100 (95). Hind tibiae in both sexes red. Antennae in both sexes slender, the length of a separate middle segment of the antenna 1.5-2 times more than its greatest width. Pronotum in both sexes intersected by the posterior transverse groove distinctly behind the middle of the pronotum. Tegmina in both sexes abbreviated, in the σ they extend beyond the middle of the hind femora, and in the φ they hardly reach it. Mesosternum in both sexes with a wide

† Named after E. N. Pavlovskii
 †† Named after V. V. Jachontov

space between the lobes; its narrowest part distinctly more than its length. Length of body ♂ 12.5-17.2, ♀ 17.6-22.1 mm; tegmina ♂ 6.7 to 10.2, ♀ 5.8-17 mm. —European part of the U. S. S. R., northward to Leningrad Region, southward to northern Caucasus; West Europe. *48. Ch. pullus (Phil.) —Red-legged 'little horse' grasshopper [Konek krasnonogil].

Philippi, 1830, Orth. Berol.:38, tab. II, Figure 9 (Gryllus), Brunner-Wattenwyl, 1882:102, 117, Figure 28F (Stenobothrus); Jakobson, 1905:180, 228 (Stenobothrus subgen. Stauroderus), Chopard, 1922:129, 149 (Stauroderus), Uvarov, 1925c:53, 55 (Stauroderus), Obenberger, 1926:91, 92 (Stenobothrus subgen. Stauroderus), Tarbinskii, 1940:26, Tarbinskii, 1948:118, —geniculata Fischer-Waldheim, 1846:327, tab. XXII (not XVII), Figures 10, 11 (Oedipoda) (not Brullé). —abruptipennis Borch, 1848, Skand. Rätv. Ins.:134, tab.

Biology: Zimin, 1938:37, 54.

- 101 (94). ♂ tegmina always without the spurious vein in the precostal field; cubital field in the ♀ wide, its greatest width entirely or almost equal to the greatest width of the median field. Hind femur in the ♀ with a red ventral aspect. ♂ antenna usually long and slender; the length of a separate median segment of the antenna twice more than its greatest width, sometimes only 1.5 times greater than that width. Hind tibia red. Length of body ♂ 13.1-15.2, ♀ 18.8-21.4 mm; tegmina ♂ 6.2-7.1, ♀ 5.3-7.3 mm. —South-eastern Kazakhstan; Trans-ili Ala Tau

. *49. Ch. jacobsoni (Ikonn.) —Jakobson's 'little horse' grasshopper [Konek Yakobsona].

Ikonnikov, 1911, Russkoe entomologicheskoe obozrenie, XI:351 (Stauroderus), Uvarov, 1927a:79, 83, Figures 65, 78 (Chorthippus subgen. Stauroderus) (partim).

- 102 (79). Tegmina in both sexes short; the length of a tegmen in the ♂ 2.5, in the ♀ twice more than its greatest width.

- 103(104). Foveolae in both sexes short; the length of a pit 2.5 times more than its greatest width. Antennae in both sexes slender and long; the length of a separate middle segment of the antenna twice more than its greatest width. Pronotum in both sexes with narrow lateral lobes; the greatest width of a lobe is distinctly less than its greatest height. Hind tibia in both sexes red. ♂ Abdomen with a red tip. Length of body ♂ 16.3, ♀ 18.2-20.6 mm; tegmina ♂ 7.2, ♀ 5.1-5.7 mm. —Tadzhikistan; Garm Region. Injures high-mountain crops.

. *50. Ch. bucharicus B. —Bienko.

Bel-Bienko, 1948, Zapiski Leningradskogo sel'skokhozyaistvennogo instituta, 5:138. —jacobsoni Uvarov, 1927a:79, 83 (Chorthippus subgen. Stauroderus) (partim).

Biology: Bel-Bienko, 1932b:18, Mishchenko, 1949b:156.

- 104(103). Foveolae in both sexes long; the length of a pit is 3 times more than its greatest width. Antennae in both sexes short and stout; the length of a separate middle segment of the antenna 1.25 times more than its greatest width. Pronotum in both sexes with wide lateral lobes; the greatest width of a lobe is equal to its greatest height (Figure 1182). Hind tibia in both sexes yellow.

- 105 (50). ♀ antennae stout, the length of a separate middle segment of the antennae equal to or less than its greatest width, ♂ pronotum in the posterior part with obsolete lateral carinae, especially at the posterior margin, the greatest width of the pronotum in the ♀ between the lateral carinae is 1.5 times more than its narrowest part. Length of body ♂ 15.3-18.9, ♀ 17-24 mm, tegmina ♂ 8-10.5, ♀ 5.7-7.8 mm. —Northern Kirghizia: source of the river Taldy-su *52. Ch. pascuus Um.

Umnov, 1931, Ent. Nachrichtenblatt, V#9 [Chorthippus (Stauroderus)].

- 106 (33). Pronotum in both sexes in the middle part and sometimes also for all the anterior part with obsolete lateral carinae. Tympanal organ on the first abdominal tergite with a wide semi-circular opening (in the diagnosis of Ch. tibetanus Uv., there is no description of the tympanal organ).
- 107 (110). Pronotum in both sexes moderately wide and short, the greatest width of the pronotum between the lateral carinae 1.5-2 times more than the length of the posterior part of the pronotum.
- 108 (109). Eyes in both sexes small; the vertical diameter of an eye in the ♂ 1.5 times greater than the subocular groove, and in the ♀ it is nearly equal to it. Pronotum in both sexes intersected by the posterior transverse groove nearly on the middle of the pronotum, the greatest width of the posterior part of the pronotum between the lateral carinae 1.5 times greater than the length of the posterior part thereof. Hind femur in both sexes short and stout, the length of a femur 4 times greater than its greatest width. Length of body ♂ 15-17, ♀ 24-26 mm, tegmina ♂ 9-10, ♀ 8.0-8.5 mm. —Eastern Kazakhstan: Saurskii mts. *53. Ch. uvarovi B.-Bienko.

Bei-Bienko, 1929, Eos, V 119, Figure 1 [Chorthippus (Stauroderus)]

- 109 (108). Eyes in the ♂ large, the vertical diameter of an eye twice greater than the subocular groove. Pronotum in both sexes intersected by the posterior transverse groove far behind the middle of the pronotum; the greatest width of the posterior part of the pronotum in the ♂ between the lateral carinae is twice more than the length of the posterior part of the pronotum. Hind femur in the ♂ narrow and long, the length of a femur 5.25 times greater than its greatest width. Length of body ♂ 12.6, ♀ 14.9 mm, tegmina ♂ 7.2, ♀ about 6.5 mm. —Eastern Kazakhstan: the Bol'shaya Bukon' River. *54. Ch. pilipes B.-Bienko.

Bei-Bienko, 1933, Bol. Soc. Esp. Hist. Nat., XXXIII 329, Figure 11

- 110 (107). ♀ pronotum long and narrow, the greatest width of the posterior part of the pronotum between the lateral carinae nearly equal to the length of the posterior part of the pronotum. Frons in the ♀ strongly sloping. ♀ pronotum intersected by the posterior transverse groove right behind the middle of the pronotum. ♀ tegmina

elongate-oval, extending beyond the third tergite of the abdomen; the costal field strongly widened, its greatest width considerably more than the greatest width of the precostal field; the median field without a median spurious vein, its greatest width is twice more than the greatest width of the cubital field. Hind tibia in the ♀ orange-red. The ♂ is unknown. Length of body ♀ 20. tegmina 7 mm. —Southeastern Tibet (according to Uvarov),
 *55. Ch. tibetanus Uv.

Uvarov, 1935, Ann. Mag. Nat. Hist., (10), XVI:193, Figure 1.

- 33 111 (10). Tegmina in both sexes with strongly widened median field; its greatest width is 3.25-5 times more than the greatest width of the cubital field. Hind femur with a black distal end. Hind tibia nearly always with a black base. Fastigium of the ♂ slightly acute-angular, with straight margins. Length of body ♂ 15.8-18.2, ♀ 18.3-19.6 mm; tegmina ♂ 10.3-12.2, ♀ 8.8-11.6 mm. —Siberia from Tomsk Region to the Maritime Territory, Altai, Yakutia, Sakhalin; Mongolia, China, south to Tibet.
 *56. Ch. intermedius (B. -Blenko) —Eastern 'little horse' grasshopper [Konek vostochnyi].

Bel-Blenko, 1926, Trudy Sibirskoi sel'skokhozyaistvennoi akademii, V:47, 49 (Stauroderus);
 Miran, 1933 26, 27; Berezhkov, 1937:43, 60, 80, Tarbinskii, 1948:118,
 Biology; Bel-Blenko, 1932b:18, Zimina, 1938:37, 50.

- 112 (9). Hind femur in both sexes usually without a dark oblique band at the base of the inner aspect; either the pronotum in both sexes has straight or weakly roundly concave lateral carinae in the anterior part (Figure 1174, 1189, 1191), or the distal end of the hind femur and the base of the hind tibia are black, the hind tibia yellow, and the mesosternum has a narrow space between the lobes, the narrowest part of which is equal to its length.
- 113(130). Tegmina and wings strongly abbreviated, not reaching by far the distal end of the hind femora; sometimes the tegmina and wings are well developed, reaching or extending beyond the distal end of the hind femora, then the pronotum has arcuately concave lateral carinae in the anterior part and the distal end of the hind femora and sometimes also the base of the hind tibia are black or dark.
- 114(125). Pronotum in both sexes intersected by the posterior transverse groove in the middle of the pronotum; sometimes behind it, then either the tegmina in both sexes extend beyond the distal end of the hind femora and the antennae are long and slender (the length of a separate middle segment of the antenna in the ♂ 3 times, in the ♀ 2-2.25 times more than its greatest width) or the ♂ tegmina have a wide median field the greatest width of which is 2-2.5 times more than the greatest width of the cubital field when the distal ends of the hind femur and sometimes also the bases of the hind tibia are black.
- 115(118). ♂ pronotum intersected by the posterior transverse groove distinctly behind the middle of the pronotum; sometimes in the

middle of the pronotum, then the cerci are short, one of them being 1.5 times longer than its greatest width. σ metasternum with a narrow space between the lobes, its narrowest part equal to or significantly less than its length.

- 116(117). σ foveolae short; the length of a pit 2-2.5 times more than its greatest width. Antennae in both sexes shorter and stouter; the length of a separate middle segment of the antenna in the σ twice, in the η 1.25-1.5 times greater than the greatest width. Tegmina in both sexes with a wide median field; its greatest width in the σ twice and in the η 1.5 times greater than the greatest width of the cubital field. . . *57. Ch. hammarstroemi (Mir.)—Siberian 'little horse' grasshopper [Konck sibirskii].
- a (b). Hind tibia yellow. Length of body σ 15-18, η 17.6-20.8 mm; tegmina σ 9.8-12, η 9-10.8 mm, in f. macroptera the tegmina in the σ are 13.5-14.5 long, in the η 15-16.5 mm.—Siberia from Altai to the Maritime Territory; Yakutia; Mongolia, China; Manchuria, Shansi. Injures seed crops of oats in Irkutsk Region, (Tulun District).
- *57. Ch. hammarstroemi hammarstroemi (Mir.)

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—hammarstroemi Miram, 1906-1907, *Ofv. Fin. Vet.-Soc. Forh.*, XLIX, 65 (Stenobothrus), Uvarov, 1925c:53, 55 (Stauroderus) (partim); Miram, 1933 26, 28; Berezhkov, 1937, 43, 61; Tarbinskii, 1948-118. —cognatus var. amurensis Ikonnikov, 1911, *Ezhegodnik Zoologicheskogo muzeya Akademii Nauk*, XVI:253 (Stauroderus) (partim).
Biology: Bel-Bienko, 1932b:18, Dovhar-Zapol'skii, 1940 246.

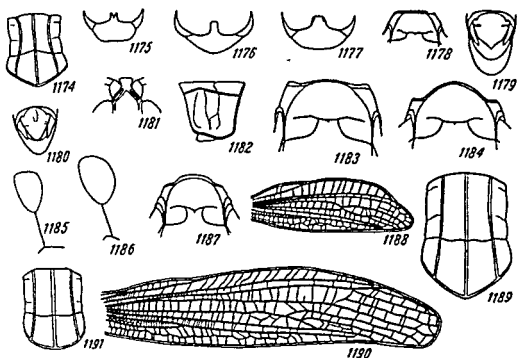
- b (a). Hind tibiae reddish. Length of body σ 17.5-18.0, η 24.5-25.5 mm; tegmina σ 11.5-12.0, η 8.75-9.5 mm.—China: Hopeh, Shantung (according to Chang).
- 57b. Ch. hammarstroemi peipingensis Chang.

Chang, 1939, *Notes Entom. Chinolse*, VI, 1:7.

- 117(116). σ foveolae long; the length of a pit 3-3.5 times more than its greatest width. Antennae in both sexes long and slender, a separate middle segment of the antenna in the σ 3 times, in the η twice longer than its greatest width. Tegmina in both sexes completely developed with a narrow median field; its greatest width nearly equal to the greatest width of the cubital field. Length of body σ 18.8-20.6, η 23.7-25.4 mm, tegmina σ 15.8-18.3, η 20.6-21.4 mm.—Transbaikal, lower course of the Amur, Maritime Territory, Korea. Known as a pest of cultivated plants. *58. Ch. schmidtii (Ikonn.)
—Far Eastern 'little horse' grasshopper [Konck dal'nevostochnyi].

Ikonnikov, 1913, Über die von P. Schmidt aus Korea mitgebrachten Acrididen 12 (Stauroderus).
Biology: Bel-Bienko, 1932b:19; Predtechenski, Zhdanov, and Popova, 1935:89.

- 118(115). σ pronotum intersected by the posterior transverse groove on the middle of the pronotum. σ cerci long; one of them 2.5-3 times longer than its greatest width. η metasternum with a wide



Figures 1174-1191
(Original)

- 1174—Chorthippus darvazicus Mistshenko sp. n., ♂, paratype, pronotum from above; 1175—Ch. darvazicus Mistshenko sp. n., ♂, type, metasternum; 1176—Ch. badius Mistshenkosp. n., ♂, type, metasternum; 1177—Ch. shantariensis Mistshenko sp. n., ♀, type, metasternum; 1178—Ch. plotnikovii Mistshenko subsp. n., ♂, type, mesosternum; 1179—Ch. tadzhicus Mistshenko sp. n., ♂, type, tip of abdomen from above; 1180—Ch. pavlovskii Mistshenko sp. n., ♂, type, tip of abdomen from above; 1181—Ch. jachontovi Mistshenko sp. n., ♂, type, vertex from above; 1182—Ch. curtus Mistshenko sp. n., ♂, paratype, pronotum from side; 1183—Ch. fallax (Zub.), ♀, mesosternum; 1184—Ch. elbrusianus B.-Blenko, ♀, mesosternum; 1185—Ch. longicornis longicornis (Latr.), ♀, left eye; 1186—Ch. longicornis geminus Mistshenko subsp. n., ♀, allotype, left eye; 1187—Ch. longicornis aemulus Mistshenko subsp. n., ♂, type, mesosternum; 1188—Ch. luminosus Mistshenko sp. n., ♂, type, right tegmen; 1189—Ch. giganteus Mistshenko sp. n., ♂, type, pronotum from above; 1190—Ch. albomarginatus calliginosus Mistshenko subsp. n., ♂, type, right tegmen; 1191—Ch. angulatus Tarb., ♂, pronotum from above.

space between the lobes; its greatest part 1.25-1.5 times greater than its length.

- 119(120). ♂ pronotum with a long narrow posterior part, the length of which is equal to its greatest width between the lateral carinae. ♀ tegmina with a distinct spurious longitudinal vein in the cubital field. Hind tarsus in both sexes with a short first segment; its length is equal to the length of the third segment of that same tarsus but without the claw. Length of body ♂ 17.8 to 20.2, ♀ 22.7-29.1 mm; tegmina ♂ 10.8-13.1, ♀ 8.8-13.2 mm. —Southern Kazakhstan, Uzbekistan, Tadzhikistan; China; Dzungaria. Slightly injures cucurbits in the Hissar valley in Tadzhikistan
 *59. Ch. turanicus Tarb. —Turanian 'little horse' grasshopper [Konek turanskii].

Uvarov, 1927a 79, 83, Figure 74, 79 (Chorthippus subgen. Stauoderus). —parallelus turanicus Tarbinskii, 1925, Konowia, IV:137, 140, Figure 3.
 Biology: Mishchenko, 1949b:157; Mishchenko, 1950, Dokl. AN SSSR (new series), LXXI, 4 789.

- 120(119). ♂ pronotum with a short wide posterior part, the length of which is distinctly less than its greatest width between the lateral carinae. ♀ tegmina without the spurious longitudinal vein in the cubital field. Hind tarsus in both sexes with a long first segment; its length considerably greater than the length of the third segment of the same tarsus (without the claw).
 121(124). Frontal ridge of the ♂ in profile barely projecting forward at the base of the antennae. ♀ pronotum with a wide posterior part, the length of which is considerably smaller than the greatest width between the lateral carinae which strongly diverge toward the posterior margin. Front tarsus in the ♂ with a short first segment; its length is considerably less than that of the third segment of the same tarsus (without the claw).
 122(123). Tarsus in both sexes with a short empodium between the claws, barely reaching their middle. ♀ mesosternum with a wide space between the lobes; the narrowest part of the space is 1.5 times greater than its length (Figure 1184). ♀ antennae always short and stout; the length of a separate middle segment of the antenna equal to or 1.25 times greater than its greatest width. ♀ Tegmina with a distinct spurious longitudinal vein in the costal field. Length of body ♂ 11.3-14.6, ♀ 16-20.5 mm; tegmina ♂ 5.5-6.6, ♀ 3.8-5.0 mm. —Northwestern Georgia, southern Kabardino-Balkarian A.S.S.R. . . . *60. Ch. elbrusianus B. —Bienko.

Bel-Bienko, 1948, Zapiski Leningradskogo sel'skokhozyaistvennogo instituta, 5:136, 138. —fallax elbrusianus Bel-Bienko, 1941, Zapiski Leningradskogo sel'skokhozyaistvennogo instituta, 4: 149.

- 123(122). Tarsus in both sexes with a large long empodium between the claws, reaching or just reaching the apices of the claws, but always extending beyond their middle. ♀ mesosternum usually with a narrow space between the lobes; the narrowest part of the space equal to its length (Figure 1183), more rarely the mesosternum has a wide space between the lobes and its narrowest part is 1.5 times greater than its length. ♀ antennae longer and more slender and the

length of a separate middle segment of the antenna is 1.5-1.75 times greater than its greatest width. The costal field of the ♀ tegmina lacks the spurious longitudinal vein. Length of body ♂ 9.8-15.1, ♀ 14.7-21.7 mm; tegmina ♂ 6.2-13.1, ♀ 3.4-6.6 mm. —Siberia from Tomsk Region to the lower course of the Amur, northeastern Kazakhstan, Altai, Yakutia; northern Mongolia, North China: Manchuria (?). —In Buryat-Mongolia and in the Irkutsk Region it injures seed crops and hay fields.
 *61. Ch. fallax (Zub.)

Uvarov, 1927a:79, 83, Figure 63 (Chorthippus subgen. Stauroderus); Miram, 1933:26, 28; Berezhkov, 1937:41, 60, 79, Tarbinskii, 1948:118. —cognatus var. fallax Zubovskii, 1899-1900, Trudy Ruskogo entomologicheskogo obshchestva, XXXIV:7 (Stenobothrus). Jakobson, 1905:230 (Stenobothrus subgen. Stauroderus). —cognatus Jakobson, 1905:181, 229 (Stenobothrus subgen. Stauroderus) (partly). —ehabergi Miram, 1906-1907, Ofv. I in. Yet.-Soc. Forh., XLIX, 6:5 (Stenobothrus). —cognatus var. amurensis Ikonnikov, 1911, Ezhegodnik Zoologicheskogo muzeya Akademii Nauk, XVI:253 (Stauroderus) (partly). —macrocerus fallax Uvarov, 1925c:56 (Stauroderus). —fallax Uvarov, 1927a:79, 83, Figure 63 (Chorthippus subgen. Stauroderus), Miram, 1933:26, 28, Berezhkov, 1937:41, 60, 79; Tarbinskii, 1948:118.

Biology: Bel-Bienko, 1932b:18, Rubtsov, 1932c:12, 15, Figure 3B, Predtechenskii, Zhdanov, and Popova, 1935:89; Zimina, 1938:37, 53.

124(121). Frontal ridge in the ♂ in profile near the base of the antennae strongly projecting forward. ♀ pronotum with a narrow posterior part, the length of which nearly equals its greatest width between the lateral carinae which slightly diverge in the posterior part, sometimes being nearly parallel to each other. Front tarsus in the ♂ with a long first segment; its length is equal or nearly equal to the length of the third segment of the same tarsus (without the claw). Length of body ♂ 13.8-16.2, ♀ 16.7-21.3 mm; tegmina ♂ 8.8 to 14.1, ♀ 7.7-13 mm; in form macroptera the tegmina in the ♂ are 17.0-18.3, in the ♀ 18-19.3 mm long. —Northern half of the European part of the U. S. S. R. except the extreme north, southern Siberia north to Verkhoyansk, Altai, Kamchatka; Mongolia, North China: Manchuria. Rather considerably injures hay-fields in southern Transbaikalia
 *62. Ch. montanus (Charp.) —Forest or northern 'little horse' grasshopper [Konek lesnoi ili severnyi].

Charpentier, 1825, Hor. Ent. i:173 (Gryllus), Miram, 1933:26, 29, Berezhkov, 1937:43, 61; Tarbinskii, 1948:118. —parallelus Brunner-Wattenwyl, 1882:103, 127 (Stenobothrus) (partim). —longicornis Jakobson, 1905:182, 234 (Stenobothrus subgen. Chorthippus) (nec Latreille), Chopard, 1922:129, 153, Figure 384 (nec Latreille). Uvarov, 1925c:59, 60, Figure 63 (nec Latreille), Obenberger, 1926:82 (Stenobothrus subgen. Chorthippus) (nec Latreille). —hammarstroemi Uvarov, 1925c:53, 55, Figure 50 (Stauroderus) (partim).

Biology: Bel-Bienko, 1928a:187, Bel-Bienko, 1932b:19, Rubtsov, 1932c:9, 10, Figures 2R, T, U; Zimina, 1938:40, 51; Dovnar-Zapolskii, 1940:246.

125(114). Pronotum in both sexes intersected by the posterior transverse groove distinctly behind the middle of the pronotum. Tegmina in both sexes usually not extending beyond the apex of the hind femora; sometimes the tegmina are well developed, then the antennae in both sexes are short and stout, the length of a

- 38 d (c). σ foveolae wide and short; the length of a pit 2.5 times greater than its greatest width. Eye in the φ large; the vertical diameter of an eye is 1.5 times greater than the subocular groove (Figure 1186). Length of body σ 13.5-15.5, φ 18.2-24.6 mm; tegmina σ 8.2-9.5, φ 5.1-6.6 mm. —Southern Kazakhstan, Karzhantau mts.: Kzyl-tam *63b. Ch. longicornis geminus Mistshenko subsp. n.
- e (b). Mesosternum in both sexes with nearly quadrate space between the lobes; its greatest width is equal to its length (Figure 1187). Length of body σ 15.4-17.6, φ 18.4-23.3 mm; tegmina σ 8.8-11.8, φ 6.1-8.3 mm. —Southern Krasnodar Territory: Khamyshki 63c. Ch. longicornis aemulus Mistshenko subsp. n.

—longicornis Tarbinskii, 1940:26, 174, 176 (partly), Tarbinskii, 1948:118 (partly).

- f (a). σ tegmina not reaching by far the tip of the abdomen, but in the φ it just extends beyond the posterior margin of the second abdominal tergite. σ antennae extending far beyond the distal of the hind femora. φ tegmina with a wide precostal field, its greatest width 1.5 times more than the greatest width of the costal field, median field in the σ narrow, its greatest width equal to the greatest width of the cubital field. Length of body σ 18.9-20.6, φ 27.6-29.4 mm; tegmina σ 9.6-11.5, φ 7.1 to 8.1 mm. —Asia Minor, western Iran (?) 63d. Ch. longicornis tenuis (Brullé).

—tenuis Brullé, 1832, Insec. Exp. Sci. Morfe, III:96, tab. 30, Figure 7 (Podisma). —dimidiata Brullé, 1832, ibidem, III, tab. 40, Figure 8 (Podisma). —parallelus Brunner-Wattenwyl, 1882:103, 127 (Stenobothrus) (partim), Jakobson, 1905:182, 233 (Stenobothrus subgen. Chonhippus) (partim); Uvarov, 1927a:79, 84 (Chonhippus subgen. Stenobothrus) (partim); —longicornis Tarbinskii, 1940:26, 174, 176 (partim); Tarbinskii, 1948:118 (partim).

- 127(126). φ vertex with an obtuse-angular fastigium; sometimes it is rounded; then the tegmina hardly extend beyond the posterior margin of the first abdominal tergite. Pronotum in both sexes with a wide posterior part, the length of which is $4/7-2/3$ its greatest width between the lateral carinae. Subgenital plate in the σ with a pointed apex.
- 128(129). Tegmina in both sexes not extending beyond the middle of the hind femora; the apex of the σ tegmina is rounded; the costal field in the σ is narrow, its greatest width 1.5-2 times greater than the greatest width of the subcostal field. Length of body σ 15.1-16.9, φ 21.8-24.0 mm; tegmina σ 5.8-6.3, φ 6.1-7.1 mm. —Southern Kazakhstan: Karatau mts. *64. Ch. karatavicus B.-Bienko.

Bel-Bienko, 1936, Ann. Mag. Nat. Hist., (10), XVIII:298.

- 539 129(128). σ tegmina extending far beyond the middle of the hind femora; apex of σ tegmina pointed; the costal field in the σ wide, its greatest width 3 times more than the greatest width of the

- subcostal field (Figure 1188). The ♀ is unknown. Length of body ♂ 11.2, tegmina 6.7 mm.—Southern Kazakhstan, Malye Barsuki: Koilibai . . . *65. Ch. luminosus Mistshenko sp. n.
- 130(113). Tegmina and wings well developed, not quite reaching, reaching, or extending beyond the distal end of the hind femora. Pronotum in the anterior part with straight or hardly visibly arcuately concave lateral carinae. Hind femur with a light distal end, only sometimes faintly darkened. Hind tibia always with a light base.
- 131(140). Pronotum in both sexes in the posterior part with distinctly divergent lateral carinae (Figure 1189); sometimes in the ♂ they are nearly parallel to each other, then the tegmina either have a wide costal field, whose greatest width is twice more than the greatest width of the subcostal field or the radial vein of the tegmina is distinctly curved. Tegmina in both sexes weakly narrowed toward the apex; apex of a tegmen wide and rounded. ♂ wings with dense venation.
- 132(137). ♂ tegmina with a wide short precostal field, not reaching or barely reaching the middle of the tegmina and usually with a distinct spurious vein, if the spurious vein is not present in the precostal field then either the ♂ foveolae are long, the length of a pit 4 times more than its greatest width, or the ♂ cerci are long, the length of one of them 2.5-3 times more than its greatest width. ♀ tegmina with a distinct spurious median vein in the median and in the cubital fields, sometimes the median field is without the spurious median vein, then the costal field is wide, its greatest width 1.5-2 times more than the greatest width of the subcostal field.
- 133(134). Pronotum in both sexes with elongated (transverse) lateral lobes; the greatest length of a lobe being greater than its height. Mesosternum in both sexes with a narrow space between the lobes; its narrowest part in the ♂ 1.75-2.25, in the ♀ nearly 1/3 its length. Subgenital plate in the ♂ elongate-conical; its length equal to or greater than the greatest width of the last 2 abdominal sternites. Length of body ♂ 22.7-23.4, ♀ 33.8 mm; tegmina ♂ 18.5 to 18.7, ♀ 23.2 mm.—Northwestern Iran: Kurdistan. 66. Ch. giganteus Mistshenko sp. n.
- 134(133). Pronotum in both sexes with high lateral lobes; the greatest length of a lobe equal to or less than its height. Mesosternum in both sexes with a wide space between the lobes; its narrowest part in the ♂ equal to or 4/5 its length and in the ♀ equal to or distinctly greater than that length. Subgenital plate in the ♂ short-conical; its length distinctly less than the greatest width of the last two abdominal sternites.
- 135(136). Foveolae in both sexes short and wide; the length of a pit 2.25-2.5 times more than its greatest width. Eyes in both sexes large; the vertical diameter of an eye in the ♂ 2.5-3 times, in the ♀ twice greater than the subocular groove. ♂ cerci long; the length of one of them 2.5 to 3 times greater than its greatest width. Length of body [sic!] ♂ 12.16, ♀ 18-21 mm, tegmina ♂ 11-15, ♀ 15.5-19.0 mm.—Southern Ukraine, the Crimea, Krasnodar Territory, the Caucasus; northern Iran. *67. Ch. loratus (F.-W.)

Tarbinskii, 1940:27, 174, 179, Figure 146², Tarbinskii, 1948:119. —lorata Fischer-Waldheim, 1846: 307 (Oedipoda); Jakobson, 1905:234 (Oedipoda). —brauner Znoiko, 1928, Russkoe entomologicheskoe obozrenie, XXII:185, Figure 1, Plate I, Figures 1-b.

- 136(135). Foveolae in both sexes long and narrow; the length of a pit 3.5-4 times greater than its greatest width. Eyes in both sexes small; the vertical diameter of an eye in the ♂ 1.5-2 times, in the ♀ 1.25-1.5 times greater than the subocular groove. ♂ cerci short; the length of one of them 1.5-2 times greater than its greatest width *68. Ch. dorsatus (Zett.) —Meadow 'little horse' grasshopper [Konek lugovoi].
- a (d). ♂ antennae stout; the length of a separate median segment is 1.5-2 times greater than its greatest width. Tegmina in both sexes with a wide costal field; its greatest width 1.5-2 times more than the greatest width of the subcostal field.
- b (c). ♂ tegmina with sharply curved median vein which is especially sharply curved near the apex of the median field; radial field in the ♂ wide, its width, taken on a line with the apex of the median field, is more than the width of the subcostal field on the same line; median field in the ♀ narrow, its greatest width equal to the greatest width of the cubital field. ♀ mesosternum with a wide space between the lobes; its narrowest part distinctly greater than its length. Length of body ♂ 13.5-16.0, ♀ 17.0-20.5 mm; tegmina ♂ 10-13, ♀ 12-13 mm. —European part of the U. S. S. R., except the northern and southern regions, the northern slopes of the greater Caucasian Range, the forest steppe and northern steppe regions of western Siberia and northern Kazakhstan; North Africa, western Europe, Injures meadows in Italy. *68a. Ch. dorsatus dorsatus (Zett.)

—dorsatus Zetterstedt, 1821, Orth. Succ. 182 (Gryllus). Brunner-Wattenwyl, 1892:103, 126 (Stenobothrus) (partim); Jakobson, 1905:182, 233 (Stenobothrus subgen. Chorthippus) (partim); Kirby, 1914:128 (partim); Chopard, 1922:129, 152, Figures 282, 383 (partim); Obenberger, 1926:83, Figures 144, 7, 16¹¹, 17¹ (Stenobothrus subgen. Chorthippus). Uvarov, 1927a:80, 84, Figures 59, 76 (partim); Miram, 1933:26, 29 (partim); Besezhkov, 1937:44, 62, Figure 98, Tarbinskii, 1948:119. —uchropa Stephens, 1835, Illustr. Brit. ent., VI:22 (Locusta).

Biology: Bel-Bienko, 1932b:18, Dornar-Zapol'skii, 1940:232, 245.

- c (b). ♂ tegmina with weakly curved median vein near the apex of the median field, sometimes it is nearly straight; radial field in the ♂ narrow, its width taken on a line with the apex of the median field is equal to or less than the width of the subcostal field on the same line; median field in the ♀ wide, its greatest width distinctly more than the greatest width of the cubital field, sometimes equal to it, then the ♀ mesothorax has a narrow space between the lobes, its narrowest part equal to or hardly less than its length. Length of body ♂ 14.6-19.0, ♀ 17.8-30.0 mm; tegmina ♂ 11.8-16.5, ♀ 12.8-22.0 mm. —Southern regions of the European part of the U. S. S. R., Transcaucasus, southern steppe regions of western Siberia and Altai, southern Kazakhstan, Asia Minor; Iran, Mongolia; Central Asia. Injures high mountain crops of

cereal grasses and hay fields in Nakhichevan A.S.S.R. and hay in the lower course of the Volga. *68b. Ch. dorsatus dichrous (Ev.)

Tarbinskii, 1940 27. — moderata Eversman, 1848, Addit. quaedam levia ad Fischeri de Waldheim Orth. Ross. 14 tab. A, Figure 7 (Oedipoda) (partim). — dichroa Eversmann, 1859, Bull. Soc. Nat. Moscou, XXXII 132 (Oedipoda). — dorsatus Brunner-Wattenwyl, 1882:103, 126 (Stenobothrus) (partim), Jakobson, 1905:182, 233 (Stenobothrus subgen. Chorthippus) (partim), Kirby, 1914 228 (partim), Kirby 1914:128 (partim), Chopard, 1922:129, 152 (partim), Uvarov, 1927a:80, 84 (partim), Miram, 1933: 26 29 (partim). — dorsatus var. viridis Vorontsovskii, 1928, Izvestiya Orenburgskoi stantsii zashchity rastenii, (1927), 1 14. — dorsatus australis Predtechenskii, 1928, Zapiski Astrakhanskoi stantsii zashchity rastenii otvrediteli, II, 1-89. — dorsatus loratus Znoiko, 1928, Russkoe Entomologicheskoe obozrenie, XXII:188, Plate I, Figures c, d (nec Fischer-Waldheim) Berezhkov, 1937 62 (nec Fischer-Waldheim).

Biology: Bei-Bienko, 1932b:18 Predtechenskii, Zhdanov, and Popova, 1935 101 Mishchenko, 1949b 156

- 541 d (a). ♂ antennae slender, the length of a separate median segment 2.5 to 3 times greater than its greatest width. Tegmina in both sexes with a narrow costal field, its greatest width equal to or 1.25 times greater than the greatest width of the subcostal. Length of body ♂ 15.5-15.7, ♀ 21.2-21.6 mm, ♂ tegmina 12.5-13.0, ♀ 15.2-16.6 mm. — Southern Transbaikalia, southern Amur Region (!), Mongolia (?). North China Manchuria. *68c. Ch. dorsatus orientalis B.-Bienko.

Bei-Bienko, 1941, Zapiski Astrakhanskoi stantsii zashchity rastenii ot vrediteli, 4 150, 152. — dorsatus Jakobson 1905 182, 233 (Stenobothrus subgen. Chorthippus) (partim) Uvarov, 1925c 58, 59 (partim), Miram, 1933:26, 29 (partim).

Biology Rubtsov, 1932c 9, 11, Figure 20, 5.

- 137 (132). ♂ tegmina with long narrow precostal field, extending far beyond its middle in the form of a narrow band and usually without the spurious vein. ♂ foveolae short, the length of a pit 2.5-3 times more than its greatest width. ♂ cerci short, the length of one of them 1.5 times greater than its greatest width. ♀ tegmina without the spurious median vein in the median and the cubital fields, costal field in the ♀ narrow, its greatest width equal to or 1.25 times greater than the greatest width of the subcostal field.
- 138 (139). Hind tibiae and the 2 basic segments of the hind tarsi in the ♂ not black, sometimes the ventral aspect of the hind tibiae is black but then the 2 basic segments of the hind tarsi are light. All the posterior tarsi in the ♀ is monochromatic. *69. Ch. albomarginatus (De G.). — White-striped or slender 'young mare' grasshopper [Kobylka beloprolosaya ili stroinaya].
- a (d). Tegmina in both sexes with a radial vein curved in a distinct S-shape which is especially sharply curved close to the apex of the median field.
- b (c). Antennae in both sexes short and stout, the length of a separate median segment of the antenna in the ♂ 1.25-1.75 times greater, in the ♀ equal to or 1.25-1.5 times greater than its greatest width. ♀ tegmina with a wide median field, its greatest width distinctly more than the greatest width of the cubital field.

Length of body ♂ 13-15, ♀ 18-21 mm; tegmina ♂ 10-12, ♀ 13-15 mm. —European part of the U. S. S. R., except the extreme north and southeastern regions; northern Kazakhstan, western Siberia; Mongolia. Injures cereal grasses and hay fields in western Siberia, meadows in Kaliningrad, and also in western Europe (Figure 1192). *69a. Ch. albomarginatus albomarginatus (De G.)

—albomarginatus De Geer, 1773, *Mém. pour servir à l'hist. des ins.*, III:480 (*Acrydium*). — elegans Charpentier, 1825, *Hor. Ent.*:153 (*Gryllus*), Brunner-Wattenwyl, 1882:103, 125, Figure 28H (*Stenobothrus*) (partim); Obenberger, 1926:82, Figures 145, 152, tab. II, Figure 94 (*Stenobothrus* subgen. *Chorthippus*). — tricarinata Stephens, 1835, *Illustr. Brit. ent.*, VI:23 (*Oedipoda*). — blandus Fischer-Waldheim, 1846:309 (*Gryllus*). — elegans var. fuliginosus Ivanov, 1887, *Trudy Obshchestva Ispytatelei prirody pri Khar'kovskom universitete*, XXI:336 (*Stenobothrus*). — albomarginatus Jakobson, 1905:182, 232 (*Stenobothrus* subgen. *Chorthippus*) (partim); Chopard, 1922:129, 153, Figures 373, 380, 381; Uvarov, 1927a:80, 84, Figures 58, 83 (partim); Uvarov, 1927b:277, Figure 94 (partim); Miram, 1933:26, 30, Figure 31; Berezhkov, 1937:43, 61, 79, Figures 17, 37, 39 (partim); Tarbinskii, 1948:119, Figure 135 (partim). — albomarginatus var. fuliginosus Jakobson, 1905:233 (*Stenobothrus* subgen. *Chorthippus*).

Biology: Bel-Bienko, 1928a:188, Berezhkov, 1929, *Izvestiya Sibirskoi stantsii zashchity rastenii*, 3(6): 75-84, Bel-Bienko, 1932b:17, Predtechenskii, Zhdanov, and Popova, 1935:81; Zimin, 1938:38, 57, plate III, Figure 13, Dovnar-Zapolskii, 1940:234, 245; Mishchenko, 1949b:155.

- 542 c (b). Antennae in both sexes long and slender; the length of a separate median segment of the antennae in the ♂ 2-3, in the ♀ 2-2.25 times greater than its greatest width. ♀ tegmina with a narrow median field; its greatest width equal to the greatest width of the cubital field. Length of body ♂ 14-18, ♀ 18-23 mm; tegmina ♂ 12.5-14.0, ♀ 14.6-17.6 mm. —Southeastern regions of the European part of the U. S. S. R., Kazakhstan except the north, Middle Asia, Transcaucasus; Asia Minor, Iran. Injures cereal grasses and hay fields in the lower course of the Volga and in the Ural Region. *69b. Ch. albomarginatus karelini (Uv.)

—elegans Brunner-Wattenwyl, 1882:103, 125 (*Stenobothrus*) (partim). — albomarginatus Jakobson, 1905:182, 232 (*Stenobothrus* subgen. *Chorthippus*) (partim); Uvarov, 1927a:80, 84 (partim); Uvarov, 1927b:247 (partim); Tarbinskii, 1940:26, 174, 179, 223 (partly); Tarbinskii, 1948:119 (partim). — moderata Eversmann, 1848, *Addit. quaedam levia ad Fischer de Waldheim Orth. Ross.*:14 (*Oedipoda*) (partim). — karelini Uvarov, 1910, *Trudy Russkogo entomologicheskogo obshchestva*, XXXIX:367 (*Stenobothrus*). — albomarginatus var. hyalotateralis, porphyricus, hyalosuperficies and ab. nigrofasciatus Vorontsovskii, 1928, *Izvestiya Orenburgskoi stantsii zashchity rastenii* (1927), 1:13, 15.

Biology: Bel-Bienko, 1932b:17; Predtechenskii, Zhdanov, and Popova, 1935:81; Mishchenko, 1949b:155.

- 543 d (a). Tegmina in both sexes with weakly arcuate radial vein close to the apex of the median field (Figure 1180). Length of body ♂ 15.3-16.7, ♀ 20.6-22.2 mm; tegmina ♂ 12.6-13.4, ♀ 15.2-16.4 mm. —Transbaikal: valley of the Kiran River near Ust'-Kiran; North China: Dynyuan'in in northern Alashan, northern Manchuria. (Type from northern Manchuria). In Transbaikal injures cereal grasses and hay fields. *69c. Ch. albomarginatus caliginosus Mishchenko subsp. n.

—albomarginatus Berezhkov, 1937:43, 61, 79 (partim).

Biology: Rubzov, 1932c:9, Figure 2C.

- 139(138). Hind tibiae and the two basic segments of the hind tarsi in the ♂ black; apical segment of hind tarsus in the ♂ white. In the ♀ the two basal segments of the hind tarsus are colored darker than the apical segment which is nearly white. Length of body ♂ 19, ♀ 23 mm, tegmina ♂ 13.3, ♀ 14.2 mm.—Asia Minor (according to Ramme). 70. Ch. labaumei Rme.

Ramme, 1926, Deutsch. Ent. Zeitschr. 277, tab. II, Figures 6a, 6b.

- 140(131). Pronotum in both sexes in the posterior part with nearly straight lateral carinae parallel to each other (Figure 1191). ♂ tegmina with a narrow costal field, its greatest width always 1.25-1.5 times more than the greatest width of the subcostal field, radial vein nearly straight, hardly arcuate. Tegmina in both sexes strongly narrowed toward the apex, apex narrow, pointed. Wings in the ♂ with sparse venation. Length of body ♂ 15-17, ♀ 12.0-22.7 mm, tegmina ♂ 11.0-11.5, ♀ 13-15 mm.—Southern and southeastern Kazakhstan, Middle Asia. Injures cotton in Uzbekistan and cucurbits in Tadzhikistan. *71. Ch. angulatus Tarb.
—Sharp-winged 'little horse' grasshopper [Konek ostrokryly].

Tarbinskii, 1927, Konowia, VI 203, Figure 2

Biology Bei-Bienko, 1932b 17 (like Ch. albomarginatus De. G.) (partim), Mishchenko, 1949b 156

156. Genus Euchorthippus Tarb.

Tarbinskii, 1925, Russkoe entomologicheskoe obozrenie, XIX, 192 Uvarov, 1927a 58, 85, Berezikov, 1937 28 Tarbinskii, 1940 27, 164, 180 Tarbinskii, 1948 113, 119.—Stenobothrus Brunner-Wattenwyl, 1882 84, 100 (partim), Jakobson, 1905 165, 177, 219 (partim) Obenberger, 1926 63, 75 (partim).—Chorthippus Chopard, 1922 127, 151 (partim) Uvarov 1925c 39, 58 (partim).—Sinhippus Ramme, 1939, Mitt. Zool. Mus. Berlin, XXIV: 132 (syn. nov.).

Type of genus: Euchorthippus pulvinatus (F.-W.).

Head short. Eyes situated almost in the middle of the head. Vertex short. Foveolae narrow, sometimes indistinct. Antennae in both sexes slender, not thickened in the apical part. Labium with small rounded outer lobes which do not resemble a beak and do not extend beyond the middle of the prosternum. Pronotum with distinct lateral carinae which are straight in the anterior part, posterior transverse groove extending along distinctly behind the middle of the pronotum, the posterior margin projecting. Tegmina and wings well developed or abbreviated, precostal field of the tegmina close to the base distinctly widened, further on abruptly narrowed and not extending far beyond the middle of the tegmina. Costal and subcostal veins of the wing straight, the subcostal field of the wing not widened in the middle, radial vein of the wing thin, not thickened in the apical third. Hind femora with rounded dorsal lobes. Hind tibia with a small ventral spur on the inner aspect, slightly larger than the dorsal spur on the same side. Tarsi in both sexes with asymmetrical claws, the inner claw of the

front tarsus distinctly smaller than its outer claw, and the outer claw of the middle and hind tarsi distinctly smaller than the inner claw of these tarsi. Metasternum in the ♂ with weakly separated, in the ♀ with widely separated lobes. Tympanal organ on the first abdominal tergite well developed, nearly vertical. Posterior margin of the last abdominal tergite in the ♂ and the margins of the supraanal plate in the ♂ of the same color as the tip of the abdomen. ♀ subgenital plate with projecting posterior margin.

About 10 species, distributed in the steppes and southern regions of the U. S. S. R., in the Far East, in western Europe, except the northern part, on several Mediterranean islands, on the Island of Madeira and in North Africa, are known.

- 1(6). Tegmina and wings in both sexes greatly abbreviated; ♂ tegmina far from reaching the distal end of the hind femora and the tip of the abdomen, in the ♀ they reach or hardly extend beyond the middle of the hind femora.
- 2(5). Frontal ridge in both sexes strongly depressed for all its length. Foveolae in the ♀ sharp. ♂ eyes moderately large; ventral diameter of an eye 2-2.5 times greater than the subocular groove. ♀ antennae slender; the length of a separate middle segment of the antenna twice more than its greatest width. ♂ tegmina with a narrow median field; its greatest width nearly equal to the greatest width of the cubital field.
- 3(4). ♂ vertex narrow, with an acute-angular fastigium; its greatest width before the eyes equal to the lateral margin taken from the anterior margin of the eye to the fastigium. ♂ pronotum in the anterior part with distinctly arcuately concave lateral carinae. ♂ tegmina only extending beyond the posterior margin of the fifth abdominal tergite. The ♀ is unknown. Length of body ♂ 13.5-13.9, tegmina 5.6-5.8 mm. —China: Szechwan. (According to Chang) 1. Eu. weichowensis Chang.

Chang, 1937, Notes Entom. Chinoise, IV, 8:180, tab. III, Figures 8-10.

- 4(3). Vertex in both sexes wide, obtuse-angular, the fastigium rounded; its greatest width in front of the eyes considerably greater than the lateral margin taken from the anterior margin of the eye to the fastigium. Pronotum in both sexes in the anterior part with straight lateral carinae, nearly parallel to each other. Tegmina in both sexes reaching the base of the supraanal plate. Length of body 15.6-17.1, ♀ 20.2-23.0 mm; tegmina ♂ 8.5-9.7, ♀ 8.7 to 11.5 mm. —Maritime Territory; Korea, China: Manchuria, Ninghsia, Kansu, *2. Eu. unicolor (Ikonn.)

Ikonnikov, 1913, Über die von P. Schmidt aus Korea mitgebrachten Acridiideen: 15 (Chorthippus). —
 also Ramme, 1939, Mitt. Zool. Berlin, XXIV:133, Figure 53, tab. II, Figures 7, 11a-c (Sinhippus)
 (syn. nov.).

- 5(2). Frontal ridge in both sexes flat above the median ocellus, depressed only in the ventral half. Foveolae in the ♀ indistinct, sometimes absent. Eye in the ♂ very large; vertical diameter of an eye in the ♂ 3.5 times greater than the subocular groove. ♀ antennae stout; the

length of a separate median segment of the antenna 1.25 times more than its greatest width. σ tegmina with a wide median field, its greatest width 1.5 times more than the greatest width of the cubital field. Hind femurs in both sexes stouter, the length of a femur nearly 4.5 times more than its greatest width. Length of body σ 15.4-16.2, φ 21.2-22.1 mm, tegmina σ 9.1-9.7, φ 10.4-11.1 mm. —Western Ukraine, southern and central part of western Europe *3. Eu. declivus (Bris.)

Tarbinskii, 1948:119. —declivum Brisout-Barneville, 1849, Ann. Soc. Ent. France, (2), VI 420 (Acridum) —pulvinatus Brunner-Wattenwyl, 1882 103, 123 (Stenobothrus) (partim), Jakobson, 1905: 182, 232 (Stenobothrus subgen. Chorthippus) (partim). —pulvinatus declivus Obenberger, 1926 84 (Stenobothrus subgen. Chorthippus)

- 6(1). Tegmina and wings in both sexes well developed, tegmina in both sexes reaching the distal end of the hind femora and abdomen, and sometimes extending beyond them.
- 7(8). Vertex in the σ weakly projecting forward, fastigium nearly arcuate. Foveolae in both sexes small; the length of a pit 2 to 2.25 times more than its greatest width. Frontal ridge in the φ flat above the median ocellus. Hind femurs in the φ slender and graceful, the length of a femur almost 5.5 times greater than its greatest width. Mesosternum in the φ with strongly medially compressed space between the lobes, its narrowest part 1/4 its greatest width. Length of body σ 12-20, φ 20-30 mm, tegmina σ 12-16, φ 16-19 mm. —Southern part of European part of the U. S. S. R., North Caucasus, Kazakhstan, Middle Asia, southeastern part of western Siberia, western Europe, Asia Minor. Reported as injuring seed crops and hay fields in Rostov Region, cereal grasses, alfalfa, vetch, and other cultivated plants in western Europe. *4. Eu. pulvinatus pulvinatus (F.-W.) —Steppe 'little horse' grasshopper [Konek stepnoi].

—pulvinata Fischer-Waldheim, 1846:305, tab XXXIII, Figure 4 (Oedipoda). —pulvinatus Brunner-Wattenwyl, 1882 84, 100 (Stenobothrus) (partim), Jakobson, 1905 182, 232 (Stenobothrus subgen. Chorthippus) (partim), Chopard, 1922, 129, 151, Figures 378, 379 (Chorthippus) Obenberger, 1926:84, Figure 16⁶ (Stenobothrus subgen. Chorthippus) Uvarov, 1927a 86, Figure 37 (partim), Berezikov, 1937:28, 57, Figure 16 (partim), Tarbinskii, 1940 27, 224 Tarbinskii, 1948 119, Figure 146A

Biology: Bei-Bienko, 1932b 19 (partim), Zimin, 1938 37, 57, Plate III, Figure 12 Mishchenko, 1949b: 157.

- 8(7). Vertex in the σ strongly projecting forward, the fastigium nearly triangular. Foveolae in both sexes large, the length of a pit 3-3.5 times greater than its greatest width. Frontal ridge in the φ distinctly depressed for all its length. Hind femora in the φ stouter, the length of a femur nearly 4.5 times greater than its greatest width. Mesosternum in the φ with the space between the lobes weakly compressed in the middle; its narrowest part only 1/2 its greatest width. Length of body σ 17.5-21.5, φ 26.4-29 mm, tegmina σ 14.5-15.4, φ 17.5-20.5 mm. —Transcaucasus; northern Iran. Has injured young high-mountain crops of cereal grasses and hay fields in Nakhichevan A. S. S. R. *5. Eu. transcaasicus Tarb. —Transcaucasian 'little horse' grasshopper [Konek zakavkazskii].

Tarbinskii, 1930, Konowia, IX:186, Tarbinskii, 1940:27, 180, Figure 146¹. —pulvinatus Jakobson, 1905:182, 232 (Stenobothrus subgen. Chorthippus) (partim). Uvarov, 1927a:86 (partim); Berezikov, 1937:28, 57 (partim).
Biology: Bei-Blenko, 1932a:19, (like Eu. pulvinatus (F.-W.)) (partim).

157. Genus Xenochela Uv.

Uvarov, 1933, Trudy Zoologicheskogo Instituta AN SSSR, (1932), 1:195.

Head short. Eyes situated in the middle of the head. Vertex short. Foveolae narrow. Antennae in both sexes slender, not thickened in the apical part. Labium with very large pyramidal outer lobes, resembling beaks and extending beyond the middle of the pronotum. Pronotum distinctly compressed in the anterior part; lateral carinae absent in the anterior part; posterior margin projecting. Tegmina and wings well developed; precostal field of tegmina close to the base distinctly widened, farther on it is abruptly narrowed and does not extend beyond the middle. Hind femora with rounded dorsal lobes. Hind tibia with a small ventral spur on the inner side, slightly larger than the dorsal spur of the same side. Hind tarsus with a small hardly developed empodium between the claws. Metasternum in both sexes with separated lobes. Tympanal organ on the first abdominal tergite well developed. Subgenital plate in the ♂ short, bluntly conical; posterior margin of ♀ plate projecting.

Only one species, living in northern Iran, is known.

- 1(1). Foveolae in both sexes distinctly narrowed toward the fastigium; the length of a pit 2.5 times more than its greatest width. Eyes large; vertical diameter of an eye in the ♂ 3 times, in the ♀ 2.5 times greater than the subocular groove. Pronotum in both sexes intersected by the posterior transverse groove nearly in the middle of the pronotum. Tegmina in both sexes without the median spurious vein in the median field; its greatest width nearly equal to the greatest width of the cubital field. Length of body ♂ 14.1-16.2, ♀ 20.4-21 mm; tegmina ♂ 11.7-12.6, ♀ 15.9-17 mm. —Northern Iran, Khorasan.
. 1. X. zarudnyi Uv.

Uvarov, 1933, Trudy Zoologicheskogo Instituta AN SSSR, (1932), 1:196, Figure 2.

158. Genus Anaptygus Mistshenko gen. n.

Head short. Eyes situated in the middle of the head. Vertex short. Foveolae long and narrow; the length of a pit 4 times more than its greatest width. Median ocellus very small. Antennae long, filiform. Pronotum at the posterior margin with obsolete lateral carinae, in the posterior part they are very weakly arcuately concave, nearly parallel to each other; posterior part [of pronotum] long and narrow, its greatest width between the lateral carinae 1.25 times more than the length of that part taken along the median carina; posterior margin with a weak obtuse angular

incision in the middle. Tegmina greatly abbreviated, lateral, lobe-like. Hind femora with rounded dorsal genicular lobes. Tympanal organ on the first abdominal tergite well developed, normal.

Only one species from eastern China is known.

- 1(1). ♂ antennae extending beyond the posterior margin of the pronotum, in the ♀ they reach it. Median ocellus very small, reduced. Pronotum in the anterior part with weakly concave lateral carinae, the posterior transverse groove extends along behind the middle of the pronotum. Tegmina hardly extending beyond the posterior margin of the first abdominal tergite, apex of a tegmen rounded, venation indistinct. Supraanal plate in the ♂ triangular. Length of body ♂ 18, ♀ 14-16 mm, tegmina ♂ 3.8, ♀ 3-3.4 mm. —China: Szechwan near the boundary with Tibet (according to Chang). 1. A. uvarovi (Chang).

Chang, 1937, Notes Entom. Chinoise, IV, 8 181, tab III, Figures 3 7 (Oreoptygonorotus)

159 Genus Saxetophilus Um.

Umnov, 1930, Wien. Ent. Zeitsg., XLVII 158.

Head short. Eyes large, situated in the middle of the head, vertical diameter of an eye in the ♂ 1.5 times greater than the subocular groove, in the ♀ it is equal to it. Vertex short. Foveolae narrow, sharp, length of a pit 2-2.5 times more than its greatest width. Median ocellus well developed, the same size as the lateral ocelli. Antennae slender, filiform. Pronotum with regular, weakly arcuately concave lateral carinae in the anterior part, near the posterior margin they are developed and distinctly divergent in the posterior part, posterior part short and wide, its greatest width between the lateral carinae twice greater than its length taken along the median carina, posterior margin with a distinct obtuse-angular incision in the middle. Tegmina strongly abbreviated, lateral, lobe-like, widely separated in the dorsum [or medio dorsal line]. Hind femora with rounded dorsal genicular lobes. Tympanal organ on the first abdominal tergite well developed. ♀ ovipositor with short valves.

Only one species from the mountains of northern Kirghizia is known.

- 1(1). Foveolae in both sexes distinct, the length of a pit in the ♂ 2.5, in the ♀ twice more than its greatest width. ♂ tegmina reaching the fourth abdominal tergite, and ♀ the second tergite of the abdomen, the length of a tegmen in the ♂ 4 times, in the ♀ 4 times greater than its greatest width. Mesosternum in both sexes with moderately wide space between the lobes, its narrowest part 1.5 times more than its length and considerably less than the narrowest part of the mesosternal lobe. Length of body ♂ 11.9-12.5, ♀ 16.1-18 mm, tegmina ♂ 3.1-3.7, ♀ 3-3.2 mm. —Northern Kirghizia Uzun-akhmat-tau mts *1. S. petulans Um.

Umnov, 1930, Wien. Ent. Zeitsg., XLVII:158

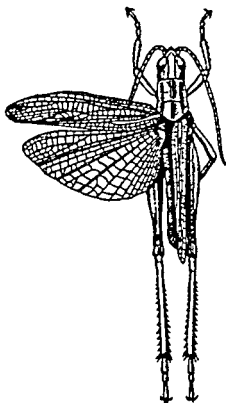


Figure 1192. Chorthippus albomarginatus albomarginatus (De G.), ♂. (After Bel-Bienko).

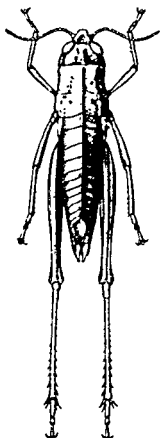
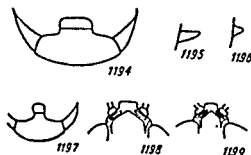


Figure 1193. Ptygippus brachypterus Mistshenko gen. et sp. n., ♀, type. (Original).



Figures 1194-1199

Original

1194-Eclippophleps similis Mistshenko sp. n., ♀, type, metasternum; 1195-E. bogdanovi Tarb., ♀, left cercus from side; 1196-E. similis Mistshenko sp. n., ♀, type, left cercus from side; 1197-E. confinis confinis Mistshenko sp. et subsp. n., ♀, allotype, metasternum; 1198-E. confinis confinis Mistshenko sp. et subsp. n., ♀, allotype, vertex from above; 1199-E. confinis levis Mistshenko sp. et subsp. n., ♀, type, vertex from above.

160. Genus Ptygippus Mistshenko gen. n

♂ unknown. Head in the ♀ short. Eyes small, situated in the middle of the head, vertical diameter of an eye considerably smaller than the subocular groove. Vertex short. Foveolae distinct, narrow. Median ocellus well developed, of the same size as the lateral ocelli. Antennae slender, filiform. Pronotum in the anterior part with irregular sinuous lateral carinae, near the posterior margin they are sharp, and weakly divergent in the posterior part, posterior transverse groove extending along far behind the middle of the pronotum, posterior part short and wide, its greatest width between the lateral carinae is nearly twice greater than the length of
548 that part taken along the median carina, posterior margin with a distinct obtuse-angular incision in the middle. Tegmina strongly abbreviated, lateral, lobe-like, widely separated on the dorsum [or medio-dorsal line]. Hind femora with rounded dorsal genicular lobes. Tympanal organ on the first abdominal tergite well developed. Ovipositor with long valves

Only one species, living in the mts. of Adzharia is known.

- 1(1). Foveolae in the ♀ long, the length of a pit 2.5 times more than its greatest width. ♂ tegmina hardly reaching the posterior margin of the first abdominal tergite, the length of a tegmen 2.5 times more than its greatest width. ♀ hind femora long and slender, a femur is 5.5 times longer than its greatest width. Mesosternum in the ♀ with a wide space between the lobes, its narrowest part 1.5 times greater than its length and nearly equal to the narrowest part of the mesosternal lobe. ♂ unknown. Length of body ♀ 15.7, tegmina 2.1 mm. - Adzhariya Sarychair, 2280 meters above sea level (Figure 1193).
..... *1. P. brachypterus Mistshenko sp. n.

161. Genus Eclipophleps Tarb

Tarbinskii, 1927, Ann. Mag. Hist., (9), XX-494
Type of genus: Eclipophleps bogdanovi Tarb.

Head short. Eyes small, situated in the middle of the head. Vertex short. Foveolae distinct, narrow. All ocelli distinct, well developed. Antennae slender, filiform. Pronotum in both sexes with rounded projecting posterior margin which in the ♀ is sometimes hardly notched in the middle. Tegmina greatly abbreviated, in the ♂ overlapping each other on the dorsum [or medio-dorsal line] and extending beyond the distal end of the hind femora, but in the ♀ they are lateral, lobe-like, wide, widely separated on the dorsum [or medio-dorsal line], with rounded apex and far from reaching the posterior margin of the metanotum, the length of a tegmen in the ♀ is slightly greater than its greatest width. Hind femora with rounded dorsal genicular lobes. Tympanal organ on the first abdominal tergite very greatly reduced, hardly perceptible

Four species, distributed in western Mongolia, are known.

- 1 (6). σ pronotum with a distinct posterior transverse groove. Metasternum in both sexes with a wide space between the lobes; its narrowest part 1.5-2 times greater than its length (Figure 1194).
- 2 (5). The eye of the σ is small; vertical diameter of an eye $2/3$ the subocular groove. φ vertex narrow; its width between the eyes 1.5 times greater than the width of the frontal ridge between the antennae. σ pronotum intersected by the posterior transverse groove just behind the middle of the pronotum; the length of the anterior part of the pronotum 1.25 times greater than the length of its posterior part.
- 3 (4). σ vertex rather narrow; its width between the eyes 1.5 times greater than the width of the frontal ridge between the antennae. φ Pronotum near the posterior transverse groove with distinct lateral carinae; posterior transverse groove short, not intersecting the lateral carinae; posterior margin very weakly rounded; the median carina sharp. Front and middle femora in the σ distinctly thickened. φ cerci narrow, the length of one of them 1.5 to twice more than its greatest width (Figure 1195). Length of body σ 15, φ 17.5-21.6 mm; tegmina σ 4.5, φ 0.7-1.4 mm. —Northwestern Mongolia: northern slopes of the Mongolian Altai. 1. E. bogdanovi Tarb.

Tarbinski, 1927, Ann. Mag. Nat. Hist., (9), XX:495, Figure 4.

- 4 (3). φ pronotum near the posterior transverse groove without lateral carinae; posterior transverse groove sharp and long, extending onto the lateral lobes; posterior margin near the median carina distinctly triangularly notched; median carina hardly marked. σ cerci wide, the length of one of them nearly equal to its greatest width (Figure 1196). The σ is unknown. Length of body φ 16.2-17.3, tegmina 0.6-0.7 mm. —Western Mongolia: region near Lake Achitnor 2. E. similis Mistshenko sp. n.
- 5 (2). σ eyes larger; vertical diameter of an eye equal to the subocular groove. φ vertex wide; its width between the eyes 2.5 times greater than the width of the frontal ridge between the antennae. σ pronotum intersected by the posterior transverse groove far behind the middle of the pronotum; the length of the anterior part of the pronotum twice greater than that of the posterior part thereof. Length of body σ 11.3, φ 15.0-17.4 mm; tegmina σ 3, φ 0.5-0.8 mm. —Northwestern Mongolia: upper course of the river Khorkora 3. E. glacialis B.-Blenko.

Bel-Blenko, 1933, Bol. Soc. Esp. Hist. Nat., XXXIII 115, Figures 3-4.

- 6 (1). σ pronotum with hardly perceptible posterior transverse groove. Metasternum in both sexes with narrow space between the lobes; its narrowest part distinctly less than or equal to its length (Figure 1197) 4. E. confinis Mistshenko sp. n.
- 550 a(b). Frontal ridge in the φ densely and coarsely punctate over all the surface. Vertex in both sexes wider (Figure 1198). Foveolae in the φ narrow, with parallel margins. Length of body σ 9.8-10.6,



Figure 1200. Oreoptygnotus tibetanus Tarb., ♀
(After Tarbinskii)

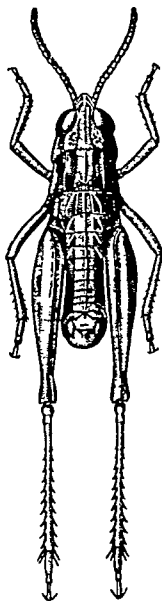


Figure 1201. Dysanema
irvinei Uv., ♂ (After
Uvarov).

- ♀ 13.6 mm; tegmina ♂ 2.6-3.4, ♀ 0.6 mm. —Western Mongolia: Mongolian Altai (foot-hills of Ikhe-bogdo).
- 4a. E. confinis confinis Mistshenko subsp. n.
- b(a). Frontal ridge in the ♀ always smooth in the middle part, but its dorsal and ventral parts sometimes punctate. ♀ vertex narrower (Figure 1199). ♀ foveolae wider and narrowed toward the fastigium. The ♂ is unknown. Length of body ♀ 12.7 to 16.9, tegmina 0.1-0.6 mm. —Western Mongolia: upper course of the Onglingol and the river Kholt (type from Ongiin-gol).
- 4b. E. confinis levis Mistshenko subsp. n.

162. Genus Oreoptigonotus Tarb.

Tarbinskii, 1927, Ann. Mag. Nat. Hist., (9), XX:499.

The ♂ is unknown. ♀ head short. Eyes small, situated in the middle of the head. Vertex short. Foveolae narrow, distinct, contiguous on the fastigium. All ocelli distinct, well developed. Antennae slender, filiform. Pronotum with a distinct obtuse-angled median notch on the posterior margin. Tegmina strongly shortened, narrow, lobe-like, with pointed apex, widely separated on the dorsum, reaching the middle of the first abdominal tergite; the length of a tegmen is 2.5 times wider than its greatest width. Hind femora with rounded dorsal genicular lobes. Tympanal organ on the first abdominal tergite absent.

Only one species, from the mts. of Tibet, is known.

- 1 (1). ♀ foveolae strongly depressed, with sharp margins; the length of a pit 3 times greater than its greatest width. ♀ antennae short, hardly reaching the posterior margin of the pronotum; length of a separate middle segment of the antenna hardly greater than its greatest width. ♀ pronotum with distinct lateral carinae which are weakly arcuately concave in the anterior part but sharply diverge in the posterior part being weakly arcuately convex and intersected only by one posterior transverse groove. ♀ Mesosternum with a very wide space between the lobes; its narrowest part twice greater than its length and distinctly greater than the narrowest part of the mesosternal lobe. The ♂ is unknown. Length of body ♀ 14.5-17.1, tegmina 1.5-2 mm. —Tibet (Figure 1200). . . . 1. O. tibetanus Tarb.

Tarbinskii, 1927, Ann. Mag. Nat. Hist., (9), XX:501, Figures 6-7.

163. Genus Hypernephia Uv.

Uvarov, 1922, Ann. Mag. Nat. Hist. (9), IX:551, Uvarov, 1927a:59, 104.

The ♂ is unknown. ♀ head short. Eyes small, situated in the middle of the head. Vertex short. Foveolae distinct, narrow. All the ocelli

undeveloped. Antennae slender, filiform, weakly flattened in the apical part. Pronotum with an obtuse-angular notch in the middle of the posterior margin. Tegmina greatly abbreviated, narrow, extending beyond the middle of the metanotum, the length of a tegmen is 4-5 times more than its width at the base. Hind femora with rounded dorsal lobes. Tympanal organ on the first abdominal tergite absent.

Only one species living in the Himalayas at an altitude of 5,600 meters is known (according to Uvarov).

- 1(1). Frontal ridge in the ♀ with sparse coarse punctures. Eyes small, the vertical diameter of an eye considerably less than the subocular groove. Pronotum with a median carina, intersected only by the posterior transverse groove. Hind femora slender and long. The ♂ is unknown. Length of body ♀ 14, tegmina 1.5 mm. —Himalayas: Mt. Everest. (According to Uvarov) 1. H. everesti Uv.

Uvarov, 1922, Ann. Mag. Nat. Hist., (9), IX 552, Uvarov, 1927a 105.

164. Genus Dysanema Uv.

Uvarov, 1925, Ann. Mag. Nat. Hist., (9), XVI 168 Uvarov, 1927a 105

Type of genus Dysanema irvinei Uv.

Head short. Eyes small, situated in the middle of the head. Vertex short. Foveolae distinct, apical [or dorsal]. Median ocellus in the ♂ very small, absent in the ♀. Antennae short, stout, flattened. Pronotum without the transverse grooves, posterior margin obtuse-angularly notched. There are no tegmina and wings. Hind femora with rounded dorsal genicular lobes. Tympanal organ on the first abdominal tergite absent.

Two species are known (according to Uvarov) living in the Himalayas at an altitude of 4,267-4,877 meters.

- 552 1(2). Pronotum in both sexes with sharp straight lateral carinae. Abdomen in both sexes dorsally with short oblique carinae on the sides of each tergite. Body in both sexes brown, with a distinct light marking. Length of body ♂ 9, ♀ 17 mm, hind femur ♂ 6, ♀ 9 mm. —Himalayas Mt. Everest, 4,267-4,572 meters high (according to Uvarov). (Figure 1201) 1. D. irvinei Uv.

Uvarov, 1925, Ann. Mag. Nat. Hist., (9), XVI 169, tab. XI, Figure 1 Uvarov, 1927a:106, Figure 103

- 2(1). ♀ Pronotum without lateral carinae, ♀ abdomen dorsally without oblique lateral carinae. Body of ♀ reddish-brown, without a light marking. The ♂ is unknown. Length of body ♀ 17, hind femur 8 mm. —Himalayas Mt. Everest, 4,877 meters high (according to Uvarov). 2. D. malloryi Uv

Uvarov, 1925, Ann. Mag. Nat. Hist., (9), XVI 171, Figure 2 Uvarov, 1927a 106, 107

6. Subfamily Oedipodinae

(Compiled by Bel-Bienko)

Like the subfamily Acridinae, but different in the following characters: Antennae always completely filiform. Frons perpendicular, making with the vertex an obtuse or a right, rounded angle (Figures 100, 1222, and others), more rarely the frons is moderately sloping (Aiolopus Fieb. and closely related genera) (Figures 1206, 1209); foveolae absent or present, in the latter case they are never contiguous in front, often they are small or triangular, more rarely oblong-trapezoidal (Figures 1207, 1210), but not quadrangular. Pronotum without lateral carinae, or they are weak and only partly developed; median carina sometimes high. Tegmina and wings completely developed, extending beyond the hind genua (among the genera investigated only in Orinhippus Uv. are they completely lateral and in ♀♀ of Uvaroviola B.-Bienko and some species of Bryodema Fieb. they are shortened by half); tegmina with a strong, convex, partly finely dentate spurious median vein (Figures 102, 1214, 1216, 1219, and others), in the basal part often with dense and irregular network of veins (only in some species of the genus Bryodema Fieb. is the spurious median vein weak or absent). Wings often brightly marked with different shades of blue, dark blue, red, or yellow, quite often with a black band. Hind femora inside on the ventral carina without a row of microscopically small tubercles. Empodium between the claws of the tarsi small, not longer than half the claw (Figures 1256-1259). Coloring of body for the greater part ochre, more rarely green or the color of dry grass, the surface of the body often rough.

Chorion of the egg usually with well-marked sculpture in the form of tubercles or little ridges, often forming a network. This sculpture is found on microscopic preparations prepared with caustic potash and cleared with oil.

It is nearest to the subfamily Acridinae, differing from it usually by the perpendicular frons, the absence of regular quadrangular foveolae, the completely filiform antennae, the absence or only partial development of the lateral carinae on the pronotum, the short, sometimes weakly pronounced empodium between the claws and usually the well developed spurious median vein in the tegmina composing part of the organ of "chirruping", (this vein 553 rubs on the convex ventral carina of the inner aspect of the hind femur). The union of these characters composes the characterization of the subfamily Oedipodinae but none of them separately can serve as a criterion for differentiating the subfamily Oedipodinae from the subfamily Acridinae, in spite of the fact that each of these subfamilies is a natural systematic group having its own biological and ecological features and perfectly reflecting different trends in adaptational evolution. The overwhelming majority of members of the subfamily Oedipodinae live on open ground or are specialized derivatives of geophiles and only a few belong to the phytophiles, when, as in the subfamily Acridinae, they are characterized by a contrasting basic feature — a close association with herbaceous cover and they live on plants predominantly as chortobionts.

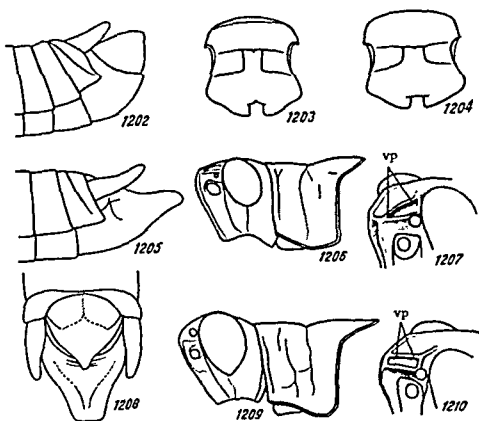
Some species by reason of their large size, bright coloring, and also as a result of adaptation to definite ecological conditions, can be considered as characteristic representatives of the open country — of the steppes,

semi-desert, and desert regions. Among plant pests, to this subfamily belong Locusta migratoria migratoria L., and also a small number of less dangerous pests among which Oedaleus decorus Germ., deserves mention.

Thirty-six genera are investigated below, of which twenty-six have been found in the fauna of the U. S. S. R. up to the present time.

Key to Genera of Oedipodinae

- 1 (36). Median carina of pronotum distinct and entire for all its extent, or it is intersected by only one transverse groove (Figures 1206, 1209, 1211-13, 1218, 1220, 1222, etc.), sometimes the carina is strongly raised, then the pronotum is roof-like or even plate-like (Figures 1224, 1225).
- 2 (27). Median carina of pronotum entire or only slightly intersected by the transverse groove (Figures 1206, 1209, 1211-13, 1218, 1220, 1222, 1224, 1225).
- 3 (14). Pronotum with a ventral median carina (Figures 1206, 1209, 1211-12), dorsally flat or slightly convex along the carina, but not sharply roof-like. Wings without the dark band, sometimes only darkened along the outer margin. Body not very large
- 4 (13). Inner pair of spurs of hind tibia normal, both these spurs are of almost the same length and are weakly curved. Spurious median vein of tegmina approaching M or equidistant between M and CuA, the field before the spurious median vein with sparse, not sloping cross veins (Figure 1216).
- 5 (12). Foveolae sharp, long, anteriorly reaching the end of the fastigium (Figures 1207, 1210). Cubital field of tegmina with a spurious vein or with an irregular network of veins. Eyes moderately large, only 1.5-2 times longer than the subocular groove (Figure 1206).
- 6 (7). Space between the lobes of the mesosternum slightly elongated (Figure 1203). Foveolae oblong-triangular (Figure 1207). Hind femora long, well-proportioned (as in Figure 1260), and the hind tibiae not shorter than the hind femora. Subgenital plate in the ♂ dorso-ventrally compressed, in the form of a short tongue (Figures 1205, 1208). Frons perceptibly sloping (Figure 1206). 165. Epacromius Uv.
- 554 7 (6). Space between the lobes of the mesosternum, even though slightly transverse, not much widened caudad (Figure 1204). Foveolae with truncate apex, i.e., trapezoidal (Figure 1210), if triangular, then the hind femora are short (Figure 1261) and stout, and the hind tibiae are shorter than the femora.
- 8 (9). Fastigium transverse (Figure 1211). The transverse groove intersects the pronotum in the middle (Figure 1211). Subgenital plate in the ♂ dorso-ventrally flattened, in the form of a tongue (as in Figure 1208). Frons in the ♀ nearly or entirely perpendicular 166. Platypygus Uv.
- 9 (8). Fastigium elongated (Figure 1212). The transverse groove is situated considerably in front of the middle of the pronotum (Figure 1212). Subgenital plate in the ♂ normal, bluntly conical (Figure 1202). Frons distinctly sloping.

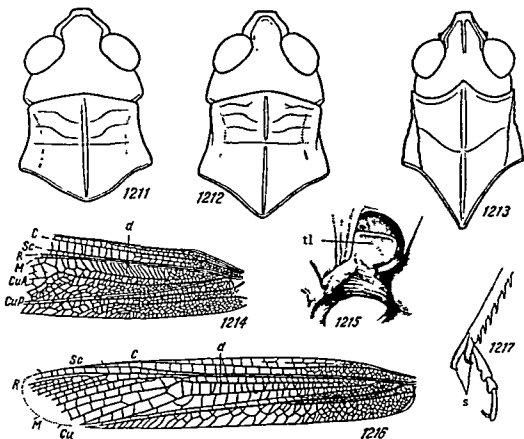


Figures 1202-1210

Original

1202-Aiolopus thalassinus F., ♂, tip of abdomen from side (South Crimea); 1203-Epacromius tergestinus Charp., ♀, mesosternum and metasternum from below; 1204-Aiolopus thalassinus F., ♀, ibi-dem; 1205-Epacromius tergestinus Charp., ♂, tip of abdomen from side (Dzhulek, Kazakhstan); 1206-E. tergestinus Charp., ♂, head and pronotum from side; 1207-E. tergestinus Charp., ♂, vertex of head from side; 1208-E. tergestinus Charp., ♂, tip of abdomen from above (Tashkent); 1209-Eremoscopus oculatus B.-Bienko gen. et sp. n., ♂, head and pronotum from side (type); 1210-Aiolopus thalassinus F., ♂, vertex of head from side.

vp-left foveola



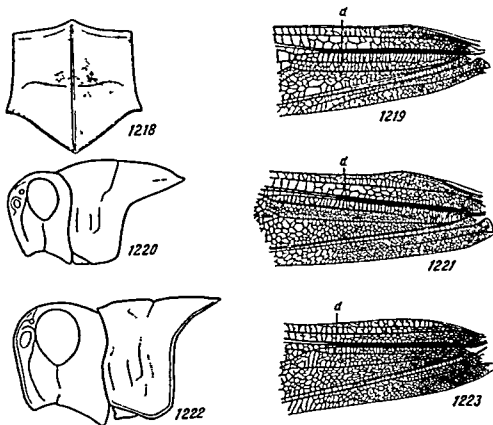
Figures 1211-1217

Original

1211-Platypygius crassus Karny, ♀, head and pronotum from above (topotype); 1212-Aiolopus thalassinus F., ♀, ibidem (South Crimea); 1213-Gastrimargus marmoratus Thunb., ♂, ibidem (Nippon); 1214-Heteropternis robusta B.-Bienko sp.n., ♂, base of left tegmen (type); 1215-Locusta migratoria L., ♀, opening of acoustic organ; 1216-Eremoscopus oculatus B.-Bienko gen. et sp.n., ♂, left tegmen; 1217-Heteropternis robusta B.-Bienko sp.n. ♀, tip of left hind tarsus, from within

tl-tympanal lobe; s-spurs

- 555 10(11). Foveolae trapezoidal (Figure 1210). Hind femora light inside, with narrow dark bands. Cubital field of the tegmina narrower, with well marked spurious vein, in the ♂ narrower or not wider than the median field. 167. Aiolopus Fieb.
- 11(10). Foveolae triangular (as in Figure 1207). Hind femora on the inside mostly black, with one or two light bands. Cubital field of the tegmina wider, with a weak irregular spurious vein or without it, in the ♂ wider than the median field . . 168. Hilethera Uv.
- 12 (5). Foveolae indistinct, practically absent. Cubital field of tegmina with distinct and rather regular cross veins, without the spurious vein (Figure 1216). Eyes large, convex, more than twice longer than the subocular groove (Figure 1209) 169. Eremoscopus B.-Blenko gen. n.
- 13 (4). Inner spurs of hind tibia long, wide, distinctly bent on the apex; ventral spur 1.4-2 times longer than the dorsal spur. (Figure 1217). Spurious median vein of the tegmina strongly approaching CuA; the field in front of the spurious vein with dense strongly sloping veins (Figure 1214). 170. Heteropternis Stal.
- 556 14 (3). Pronotum sharply roof-like or with median carina which is strongly raised and in profile often arcuate (Figures 34, 1220, 1222, 1224, 1225). Wings with a dark band; if without it, then the body is large.
- 15(24). Median carina of the pronotum not very high or rather low, in profile straight, hardly concave, or slightly arcuate (Figures 34, 1220, 1222).
- 16(23). Pronotum dorsally without 2 depressions on the sides of the median carina. Lateral ocelli situated considerably below the lateral margin of the vertex, when the foveolae are present — directly adjoining their ventral margin. Tegmina membranous in the apical part, also transparent, in the ♀ they extend beyond the distal end of the hind femora. Body in the ♂ not black ventrally.
- 17(18). Thorax ventrally with dense hairs, making tomentum. The spurious median vein in the tegmina for all its extent brought closer to CuA than to M. Tympanal lobe large, covering half the opening of the tympanal organ (Figure 1215). Wings colorless, without the dark band 171. Locusta L.
- 18(17). Thorax bare or with sparse hairs. Spurious median vein of the tegmina situated equidistantly between M and CuA or closer to M (Figures 1219, 1221, 1223). Tympanal lobe small, covering less than 1/3 of the opening of the tympanal organ (as in Figure 1231).
- 19(22). Median carina of pronotum quite entire or only indistinctly intersected by the transverse groove (Figures 1213, 1218, 1220). Basal half of tegmina with a moderately dense network of veins. The median field in front of the spurious vein with rather regular transverse veins (Figures 1219, 1221). Body greenish or yellowish, but not ochre in color.
- 20(21). Pronotum short, usually with a light X-shaped marking, its anterior margin nearly straight, the posterior margin obtuse-angular or rounded (Figure 1218). Median field of tegmina narrower than the cubital field; spurious median vein found approximately equidistant from M and CuA (Figure 1219) . . 172. Oedaleus Fieb.

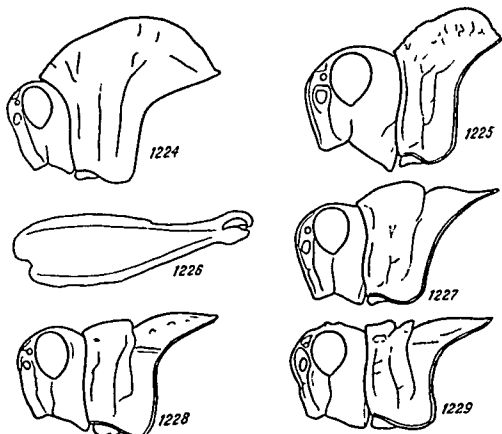


Figures 1218-1223

Original

1218—Oedaleus decorus Germ., ♀, pronotum from above, 1219—Oe. decorus Germ., ♂, base of left tegmen, 1220—Gastrimargus marmoratus Thunb., ♂, head and pronotum from side, 1221—G. marmoratus Thunb., ♂, base of left tegmen, 1222—Scinthanista notabilis miramae Uv., ♂, head and pronotum from side (topotype), 1223—S. notabilis miramae Uv., ♂, base of left tegmen.

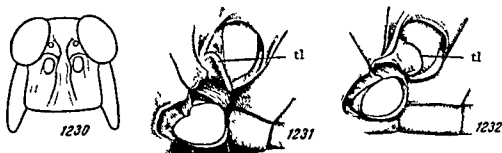
- 21(20). Pronotum longer, usually without the light X-shaped marking, its anterior and posterior margins strongly projecting as an angle, the posterior angle always being acute (Figure 1213, 1220). Median field of tegmina not narrower than cubital; the spurious median vein closer to M than to CuA (Figure 1221). 173. Gastrimargus Sauss.
- 22(19). Median carina of pronotum distinctly intersected by the transverse groove (Figure 1222). Tegmina in the basal half with very dense venation; median field before the spurious vein with irregular veins partly forming a network (Figure 1223). Body ochre in color 174. Scintharista Sauss.
- 23(16). Pronotum dorsally on the sides of the median carina with 2 distinct depressions in the form of pits. Lateral ocelli situated near the margin of the vertex. Tegmina leathery, not transparent, in the ♀ somewhat abbreviated not extending beyond the hind genua. Body of the ♂ ventrally shiny-black. 175. Psophus Fieb.
- 557 24(15). Median carina of pronotum very high, plate-like, in profile strongly arcuate (Figures 1224, 1225). Wings with a wide dark band, sending off a branch toward the base of the wing.
- 25(26). Pronotum anteriorly projecting at an acute angle, in profile regularly arcuate (Figure 1324). Foveolae indistinct. Tegmina (except the apical third), leathery, not transparent. 176. Pyrgodera F.-W.
- 26(25). Pronotum anteriorly not projecting at an angle, in profile at least weakly sinuous (Figure 1225). Foveolae well marked, depressed. Tegmina leathery and opaque only in the basal half, while in the remaining part transparent, membranous 177. Brunnerella Sauss.
- 27 (2). Median carina of pronotum very distinctly interrupted by the transverse groove; the carina itself also very distinct (Figures 1227, 1228, 1269).
- 28(29). Median carina of pronotum in the prozona considerably higher than in the metazona, plate-like (Figure 1227). Foveolae absent. Wings with a wide dark band, sending off a branch toward the base 178. Ptetica Sauss.
- 558 29(28). Median carina of pronotum rather low, not platelike, not higher in the prozona than in the metazona (Figures 1228, 1269).
- 30(35). Dorsal carina of hind femora entire, without a ledge [or shoulder] or depression in the apical part.
- 31(34). Body ventrally and legs bare or with sparse hairs. Hind tibiae neither sky-blue nor red. Dorsal carina of hind femurs not dentate.
- 32(33). Metazona of pronotum with lateral carinae (Figures 1267, 1268). Foveolae distinct, elongate-triangular, reaching the end of the fastigium. Wings without bands, darkened only along the anterior and outer margins. Body thickset 179. Celes Sauss.
- 33(32). Metazona of pronotum without lateral carinae (Figure 1269). Foveolae indistinct, small, not reaching the apex of the fastigium. Wings with a narrow incomplete band. Body very well-proportioned (Figure 1273). 180. Mioscirtus Sauss.



Figures 1224-1229

Original

1224-Pyrgodera armata F.-W., ♂, head and pronotum from side, 1225-Brunnerella mirabilis Sauss., ♂, ibidem (Shakhrud), 1226-Oedipoda coerulescens L., ♂, hind femur from side, 1227-Ptetica cristulata Sauss., ♂, head and pronotum from side (Kzyl-orda), 1228-Oedipoda coerulescens L., ♂, ibidem, 1229-Trilophidia japonica Sauss., ♀, ibidem (Nippon).



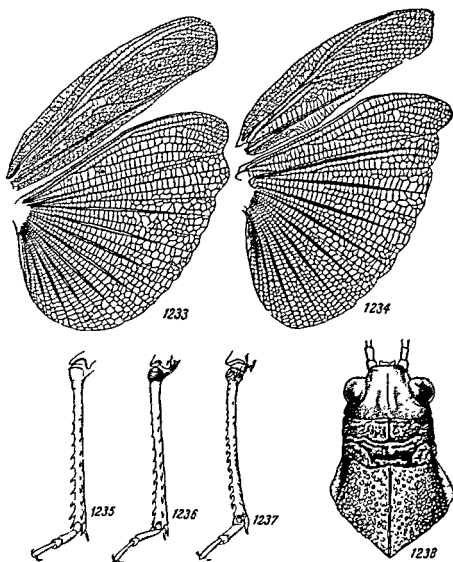
Figures 1230-1232

Original

1230-Acrotylus insubricus Scop., ♀, head from front, 1231-Bryodemata tuberculatum F., ♂, opening of acoustic organ, 1232-Sphingonotus nebulosus F.-W., ♀, ibidem.
tl-tympanal lobe.

- 34(31). Body ventrally and legs with dense long hairs. Hind tibiae vivid sky-blue or red, at least in the middle part. Dorsal carina of hind femora finely dentate 181. Pternoscirta Sauss.,
- 559 35(30). Dorsal carina of hind femora in the apical part indented by a ledge [or shoulder] or distinctly lowered (Figure 1226). Pronotum rough, often with traces of lateral carinae in the metazona (Figure 1228). Foveolae irregularly rounded or slightly elongate. 182. Oedipoda Latr.
- 36 (1). Median carina of pronotum intersected by 2-3 transverse grooves, or very weak, obsolete in places and indistinct (Figures 1229, 1238, 1240, 1241, 1245, 1246, 1249). The pronotum itself is often saddle-shaped or has a flat metazona. Foveolae absent or small, not reaching the end of the fastigium.
- 37(38). Median carina of pronotum distinctly interrupted in the prozona by 2 transverse grooves and here it seems to be bidentate (Figure 1229). Occiput with a pair of tubercles between the eyes. Wings without the dark band. Body ventrally and legs with dense hairs 183. Trilophidia Stål.
- 38(37). Median carina of pronotum indistinctly interrupted by the transverse grooves, not bidentate in the prozona (Figures 1238, 1240, 1241, 1245, 1246, 1249). Occiput without the pair of tubercles between the eyes.
- 39(70). Tegmina completely developed, long, or, only the ♀, shortened by half, but not lateral; wings always present.
- 40(41). Frontal ridge with a groove for all its length, wide, but very strongly narrowed near the fastigium (Figure 1230). Pronotum very short with widely rounded posterior margin, the transverse groove situated more or less in the middle of the pronotum. Body and legs with dense hairs (Figure 1275) 184. Acrotylus Fieb.
- 41(40). Frontal ridge flat or with a depression near the median ocellus, in the dorsal part near the fastigium moderately narrowed or of the same width as in the remaining part. Pronotum not very short, its posterior margin projecting at an angle; the transverse groove usually situated considerably in front of the middle of the pronotum (Figures 1238, 1240, 1241, 1245, 1246, 1249).
- 42(67). Spurs of the hind tibiae normal, not longer than half the first segment of the hind tarsus, middle femora less than 1.5 times longer than the front femora.
- 43(56). Tympanal lobe small, not sharply isolated, covering less than 1/3 of the opening of the tympanal organ (Figure 1231). The dark band of the wings, if developed, often sending off a branch toward the base of the wing (Figure 1244).
- 560 44(49). Every other one of the principal veins of the wing in the ♂, thickened (Figures 1233, 1234). ♀ tegmina often shortened by half and in this case not extending beyond the hind genua (Figure 1284). Pronotum usually with scattered tubercles or rugulae (Figure 1238).
- 45(48). Hind tibia on the inner aspect with 9-13 straight spines (Figures 1235, 1236).
- 46(47). Base of hind tibia dorsally smooth or with sparse punctures (Figure 1235). Median field of tegmina wide, not narrower than the

- cubital field, either with a slender spurious vein or without it (Figure 1223). Wings either have a dark band or they are almost completely dark (Figures 1276-79); in the ♀ the tegmina and wings are often abbreviated (Figures 1280, 1284). 185. Bryodema Fieb.
- 47(46). Base of hind tibiae dorsally with thin transverse rugae (Figure 1236). Median field of tegmina narrower than the cubital field, but with spurious median vein is thicker than CuA (Figure 1234). Tegmina and wings in both sexes completely developed, wings without a dark band. 186. Angaracris B.-Blenko.
- 48(45). Hind tibiae on the inner aspect with 15-18 curved spines; base of hind tibiae dorsally strongly and irregularly rugose (Figure 1237). Tegmina and wings in the ♀ abbreviated; wings in both sexes without bands 187. Uvaroviola B.-Blenko.
- 49(44). The principal veins of the wings in the ♂ normal, not thickened; tegmina in the ♀ completely developed, extending beyond the hind genua. Pronotum smooth.
- 50(51). Hind tibia on the inner aspect with 15-17 spines (Figures 1239). Wings with very wide dark band. Body with dense hairs. 188. Compsorhipis Sauss.
- 51(50). Hind tibia on the inner aspect with 9-13 spines. Wings either with a narrow dark band, sending off a branch toward the base, or without bands. Body bare or with sparse hairs.
- 52(55). Median carina of pronotum thin, but distinct for all its extent. Head not projecting or not much projecting upward above the level of the pronotum (Figures 1240, 1241). Last sternite of abdomen in the ♀ blue. ♀ cerci sharp, awl-shaped on the apex (Figure 1242).
- 53(54). Tegmina wider, not reaching the apex of the hind tibiae, wings usually with a dark band. Head in profile not projecting upward above the level of the pronotum (Figure 1240). Hind femora more thick-set, their length 3.1-3.5 times more than their width (Figure 1285). 189. Pseudocoelus I. Bol.
- 54(53). Tegmina narrower, reaching the apex of the hind tibiae, wings without the dark band. Head in profile moderately projecting above the level of the pronotum (Figure 1241). Hind femora more slender and graceful, in the species examined here 3.8-4 times longer than their own length. 190. Cophotylus Krauss.
- 55(52). Median carina of pronotum very thin, weak, absent in the prozona. Head strongly projecting upward above the level of the pronotum (Figure 1245). Last abdominal sternite in the ♀ not blue (sometimes with only a faint bluish tinge). ♀ cerci not awl-shaped, with a blunted apex (Figure 1243). 191. Heliopteryx Uv.
- 561 56(43). Tympanal lobe large, sharply isolated, in the form of a plate covering not less than 1/3 of the opening of the tympanal organ (Figure 1232). The dark band on the wings, if present, is without the radial branch along the anterior margin.
- 57(66). Wings (the hind wings!) with normal venation, the 2 longitudinal veins of the second lobe of the wing (2A₁ and 2A₂) thin, moderately approaching each other, the third wing-lobe anteriorly without the accessory vein.

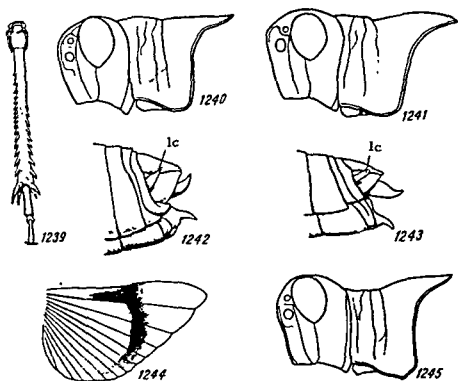


Figures 1233-1238

(After Bei-Bienko)

1233-Bryodema gebleri F.-W., ♂, right tegmen and wing; 1234-Angaracris barabensis Pall., ♂, ibidem; 1235-Bryodema gebleri F.W., ♂, hind tibia; 1236-Angaracris barabensis Pall., ♂, ibidem; 1237-Uvaroviola multispinosa B.-Bienko, ♂, ibidem; 1238-Bryodema gebleri F.-W., ♂, head and pronotum from above.

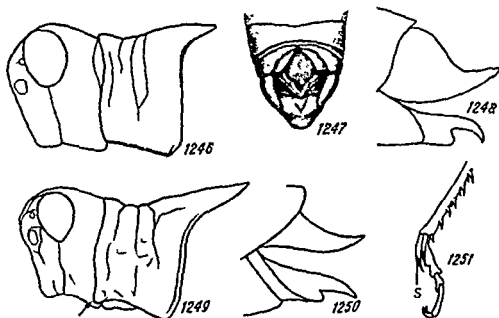
- 58 (63). Anterior ventral angle of the lateral lobes of the pronotum obtuse or right, not produced in the form of a process (Figure 1246).
- 562 59 (60). The convex pad on the anterior margin of the mesosternum with coarse depressed punctures, rugose, especially in the ♀. Subgenital plate in the ♂ strongly dorso-ventrally flattened, widely tongue-shaped (Figure 1247). Ventral valves of ♀ ovipositor slender, straight, without a strong process on the outer margin. 192. Eusphingonotus B.-Bienko.
- 60 (59). Convex pad on the anterior margin of the mesosternum smooth or with sparse punctures. Subgenital plate in the ♂ not flattened, short-conical. Ventral valves of ♀ ovipositor thickened at the base, with a strong process (Figures 1248, 1301).
- 61 (62). The spurious median vein of the tegmina more convex than R and M, sometimes finely granular. There are no small convex transverse veins between R and M on the light median sector of the tegmina 193. Sphingonotus Fieb.
- 563 62 (61). Spurious median vein of tegmina smooth, less convex in the apical part than R and M. Convex cross veins are developed between R and M on the light median sector of the tegmina (Figure 1252), making a joint dentate convexity (examined from above the tegmen in front or behind, under high power!). Hind femurs light inside, with one inconspicuous dark band . . 194. Vosseleriana Uv.
- 63 (58). Antero-ventral angle of lateral lobes of pronotum distinctly produced in the form of a right-angled or acute-angled process, especially in the ♀ (Figure 1249).
- 64 (65). Prosternum between the front legs strongly spherically swollen at least in the ♀. Space between the lobes of the mesosternum very wide, 2.6-3 times wider than it is long (Figure 1253). Ovipositor of the usual type, i. e., with valves curved like hooks, thickened at the base, the ventral pair with a strong process on the outer margin (as in Figure 1238). 195. Sphingoderus B.-Bienko.
- 65 (64). Prosternum normal, not swollen. Space between the lateral lobes of the mesosternum not more than twice greater than their own length (Figure 1245). Ovipositor with narrow, nearly straight valves, the ventral pair with a weak process on the outer margin (Figure 1250). 196. Asphingoderus B.-Bienko.
- 66 (57). Wings (the hind wings!) without the dark band, with thickened main veins, the 2 longitudinal veins of the second lobe of the wing (2A₁ and 2A₂) very close together, thickened, the third lobe anteriorly with an accessory vein which does not reach the base of the wing (Figure 1255) 197. Helioscirtus Sauss.
- 564 67 (42). Spurs of hind tibia very long, the inner pair of spurs considerably longer than half the first segment of the hind tarsus (Figure 1251). Middle femora slender, long, not less than 1.5 times longer than the front ones.
- 68 (69). Head, when examined from in front, nearly as wide as it is high, strongly widened ventrad. Inner pair of spurs of the hind tibia longer than the first segment of the hind tarsi. Coloring of body sandy, with small spots (Figure 1318) 198. Hyalorrhapis Sauss.



Figures 1239-1245
(Original)

1239-Compsorhipis bryodemoides B.-Bienko, ♀, hind right tibia; 1240-Pseudocoles oedipodioides I. Bol., ♀, head and pronotum from side (Artvin); 1241-Cophotylus decorus B.-Bienko sp.n., ♀, ibidem (paratype); 1242-Pseudocoles oedipodioides Bol., ♀, tip of abdomen from side; 1243-Heliopteryx humeralis Kuthy, ♀, ibidem; 1244-H. humeralis Kuthy, ♀, right wing; 1245-H. humeralis Kuthy, ♀, head and pronotum from side.

lc-left cercus

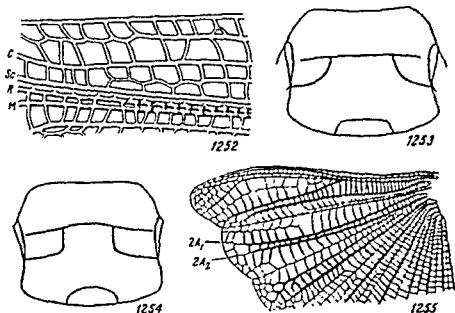


Figures 1246-1251

(Original)

1246-Sphingonotus maculatus Uv., ♀, head and pronotum from side; 1247-Eusphingonotus japonicus Sauss., ♂, tip of abdomen from above; 1248-Sphingonotus salinus Pall., ♀, ovipositor from side; 1249-Sphingoderus carinatus Sauss., ♀, head and pronotum from side; arrow points to produced antero-ventral angle of lateral lobes; 1250-Asphingoderus uvarovites Mistsh., ♀, ovipositor from side; 1251-Leptopternis gracilis Ev., ♀, tip of hind tarsus from within.

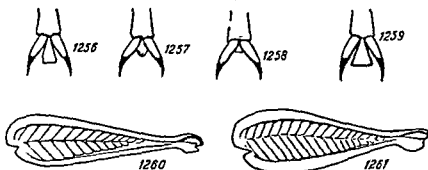
s—spurs



Figures 1252-1255

(No. 1253 after Mistshenko; 1252, 1254-1255 original)

1252-Vosseleriana paradoxa B.Bienko, ♂, anterior part of middle of left tegmen; 1253-Sphingoderus carinatus Sauss., ♀, mesosternum and metasternum from below; 1254-Asphingoderus uvarovites Mistsh., ♀, ibidem (paratype); 1255-Helioscirtus moseri Sauss., ♂, anterior half of wing.



Figures 1256-1261

(Original)

1256-Epacromius coerulipes Ivan., ♂, empodium and claws of tarsus; 1257-E. tergestinus Charp., ♂, ibidem; 1258-Alolopus oxianus Uv., ♂, ibidem; 1259-A. thalassinus F., ♂, ibidem; 1260-A. thalassinus F., ♀, hind femur (South Crimea); 1261-A. strepens Latr., ♀, ibidem (Greece).

- 69(68). Head when examined from the side narrow, considerably higher than wide, not widened ventrad. The inner pair of spurs of the hind tibia not longer than the first tarsal segment (Figure 1251). Body [sic!] color with an indistinct pattern of spots and bands 199. Leptopternis Sauss.
- 70(39). Tegmina strongly abbreviated, lateral, lobe-like, no wings. Pronotum short, with rounded posterior margin, transverse groove situated in the middle. 200. Orinhippus Uv.

165. Genus Epacromius Uv. — Flying locust [Letun'ya].

Uvarov, 1942:337-338.

Type of genus: Epacromius tergestinus Charp.

Like Aiolopus Fieb. (see farther on) but differing in the following characters. Foveolae elongate-triangular (Figure 1207), angle of the fastigium rounded, frontal ridge, at least in the σ , with a weak groove. 565 Space between the lateral lobes of the mesosternum slightly elongated (Figure 1203). The spurious median vein of the tegmina often irregular, extending along the middle of the median field or brought moderately close to M in the apical part. Subgenital plate in the σ dorso-ventrally flattened, rather wide, in the form of a short tongue (Figures 1205, 1208).

Three species are known of which 2 are widely distributed in the U.S.S.R., the third species has not been sufficiently investigated and is known from Japan. All the species are characteristic inhabitants of saline soils, being particularly common on saline meadows.

- 1 (2). Empodium between the claws of the tarsi large, not shorter than half the length of the claw (Figure 1256). Antennae shorter and stouter, their median segments less than twice as long as they are wide. Pronotum less saddle-shaped. Ventral aspect of hind femora rosy (except in green individuals). Subgenital plate in the σ relatively short, posteriorly triangular, the posterior margin narrowly rounded. Length of body σ 14.0-17.5, φ 21.5-29.0 mm, tegmina σ 12-16, φ 17-25 mm. — Southern European part of the U.S.S.R. to the north as far as Mirgorod and Kupyansk, eastern Ciscaucasus and forest-steppe region of Siberia to the Transbaikalia, Amur Region and southern Maritime Territory, steppes of Kazakhstan, banks of the Balkash, Trans-Ili Ala Tau and Alma-Ata (a more macropterous form), Austria, Hungary, Trieste, Kashmir, Mongolia, Korea, and China (Kashgaria, Dzungaria, Manchuria and northeastern provinces to Nankin to the south). *1. E. coerulipes (Ivan.)

Ivanov, 1887, Trudy Obshchestva Ispytatelei prirody Khar'kovskogo universiteta, XXI 348 (Epacromia) Tarbinski, 1930, Zool. Anz., XC1:335 (Aiolopus) Uvarov, 1942 339, tab XXVIII, Figures 94-95 (chinesis) Karay, 1907, Verh. Zool. bot. Ges. Wien LVII 285 (Aiolopus)

- 2 (1). Empodium between the claws of the tarsi very small, narrow (Figure 1257). Antennae slender, their median segments 2-3 times

longer than their own width. Pronotum more saddle-shaped. Ventral aspect of hind femurs never rosy. A geographically variable species, but separation into subspecies has not been worked out. Green individuals, predominantly ♀♀ (f. viridis) are often found. (Figure 1203, 1206, 1207). *2. E. tergestinus (Charp.)—Saline soil flying locust [Solonchakovaya letun'ya]. Subgenital plate in the ♂ longer with roundly truncate apex (Figure 1208); posterior margin perceptibly thinned, carinate, in profile apparently weakly bent back ventrad (Figure 1205). Third segment of hind tarsus in the ♂ often longer than the first. Tegmina in both sexes longer, extending beyond the middle of the hind tibiae (only in individuals of border parts of the range, such as Pamir and Transbaikal, the tegmina are somewhat shorter, their length is given below in parentheses). Length of body ♂ 17-22, ♀ 25-32 mm; tegmina ♂ 18-23 (15.5-17.5), ♀ 26-34 (22-26) mm. —Eastern Caucasus, Azerbaijan, the Lower Volga Region, Kazakhstan, — except the forest-steppes part, Middle Asia to Pamir, Altai, Transbaikal; northwestern Mongolia, China (Dzungaria, Kashgaria), Afghanistan, southern Europe, and the Atlantic coast in France. It may injure hay fields and green fodder, and sometimes slightly damages wheat and cotton *2a. E. tergestinus tergestinus (Charp.)

Charpentier, 1825, Horae Ent. 139 (Gryllus), Tarbinskii, 1940:195 (Alolopus); Uvarov, 1942:341, tab. XXVIII, Figures 87-93. —viridis Uvarov, 1910, Trudy Russkogo entomologicheskogo obshchestva, XXXIX 372, Figures 1-2 (Eparomia).

- 566 b(a). Subgenital plate in the ♂ shorter, with narrowly rounded posterior margin; posterior margin not thinned and not carinate, in profile apparently not bent back downward. Third segment of hind tarsus in the ♂ hardly equal to the first. Tegmina in both sexes barely reaching the middle of the hind tibiae or even shorter. Length of body ♂ 16.5-17.0, ♀ 23-27 mm; tegmina ♂ 16, ♀ 22-25 mm. —China, Province of Kansu (type ♂, Ninganpao, foot-hills of eastern Nan Shan) and eastern Tsaidam 2b. E. tergestinus extimus B.-Bienko subsp. n.
- 3 (0). Apparently close to the preceding, insufficiently described species, also having a small empodium between the claws, but differing in having a larger body and stouter hind femora. Length of body ♂ 23-24, ♀ 31-34 mm; tegmina ♂ 22.2-26.0, ♀ 28-32 mm. — Japan: Islands of Nippon and Kyushu. 3. E. japonicus (Shir.)

Shiraki, 1910:39, tab. I, Figure 10 (Oedipoda); Furukawa, 1939, Rep. First Sci. Exped. Manchoukuo, V, div. 1, part 5, art. 16:141 (Alolopus); Uvarov, 1942:343.

166. Genus Platypygus Uv.

Uvarov, 1942:337, 343.

Type of genus: Platypygus platypygus Fent. from Spain.

† [Honshu.]

Like Aiolopus Fieb., but the subgenital plate, as in E pacromius Uv. Body thickset, with a thick head, weakly sloping or nearly completely perpendicular frons, with a flat frontal ridge and a wide anteriorly rounded vertex (Figure 1211). Foveolae narrow, triangular, or if they have a short-truncate apex, then their margins are not sharp. The transverse groove intersects the pronotum only somewhat before its middle. The space between the lateral lobes of the mesosternum is transverse, being widened caudad. The spurious median vein of the tegmina is straight, brought somewhat close to M only in the apical part, but distinctly separated from it. Hind femora short, wide, hind tibiae shorter than the femora. Subgenital plate in the ♂ dorso-ventrally flattened, rather long, in the form of a wide tongue.

Two species are known of which one is distributed in Spain and the other in the U. S. S. R. and on the Balkan peninsula, only this last species is cited below.

- 1(1). Frontal ridge wide, in profile slightly convex, at the fastigium not narrowed or hardly narrowed. Fastigium wide, not depressed, Foveolae shallow, narrowly triangular, with a short-truncate apex. Tegmina extending slightly beyond the apex of the hind femora. Supra-anal plate in the ♂ with a distinct small transverse ridge. Subgenital plate in the ♂ moderately flattened, with narrowly rounded apex. Length of body ♂ 15.5-17.5, ♀ 20-23 mm, tegmina ♂ 12-15, ♀ 15-17 mm. — of body ♂ 15.5-17.5, ♀ 20-23 mm, tegmina ♂ 12-15, ♀ 15-17 mm. — Southern Ukraine (estuaries near Odessa and the banks of the Sivash), western Ciscaucasus (Anapa[†]), Sal'sk steppes, Lower Volga Region (near Stalingrad)†, Macedonia. Stays on saline coasts, rarely found. (Figure 1211). *1. P. crassus (Karny).

567 Karny, 1907, Verh. Zool. bot. Ges., Wien, 57:286 (Aiolopus) Uvarov, 1927a:101 (Aiolopus)
Uvarov, 1942:345, tab. XXVIII, Figure 101-103

167. Genus Aiolopus Fieb.

Fieber, 1853, Lotos, III:100 Uvarov, 1927a:99 1942:336, 337 Tarbinskii, 1940:29, 193 —Epa-
cromia Fischer, 1853, Orth. Europ., 296, 360 Jakobson, 1905:245
Type of genus: Aiolopus thalassinus F.

Body slender and graceful, nearly bare, smooth. Frons distinctly, in the ♂ often rather strongly, sloping, frontal ridge flat or slightly convex, more rarely with a groove, vertex (Figure 1212) even in the most thickset species elongate, its apex acute-angular though the angle itself is often rounded, foveolae well developed, elongate-trapezoidal, anteriorly reaching the fastigium of the vertex and here approaching (Figure 1210). Pronotum narrowed in front, median carina thin, low, intersected by one transverse groove, posterior margin roundly rectangular or triangular, no lateral carinae, situated considerably in front of the middle of the pronotum (Figure 1212). Space between lateral mesosternal lobes slightly angular (Figure 1212). Not much widened caudad (Figure 1204). Tegmina transverse, posteriorly not much widened caudad (Figure 1204). Tegmina rather narrow, long, the spurious median veins sharp, strongly approaching M on the apex and nearly or entirely touching it, in the ♂ very finely

† [Now Volgograd.]

dentate; cubital field with well marked spurious vein, not wider or not much wider than the median field. Wings without the dark band, near the base being colorless or slightly tinted. Hind femora light inside, with dark bands, the inner part of the ventral aspect of the femur often red. Tympanal lobe small, covering less than 1/3 of the opening of the sound organ. Subgenital plate in the ♂ of the usual type, bluntly conical (Figure 1202).

About 20 species, the majority of them distributed in tropical and subtropical regions of the Old World; only 5 species are investigated below, they are peculiar to the U. S. S. R. and adjacent countries. Our species live predominantly along the banks of rivers, lakes, or seas among meadow vegetation, or on salt marshes; apparently many overwinter in the adult phase.

Recently this genus has been more widely understood; at present a number of species, formerly included in this genus, have been separated off into the independent genera Epacromius Uv. and Platypygius Uv. (see above).

1(6). Hind femora long, well-proportioned, considerably narrower than the tegmina (Figure 1260); hind tibiae not shorter than the femora. Pronotum saddle-shaped, distinctly narrowed and with a constriction in the anterior part (Figure 1212), dorsally often with light bands on the sides. The space between the lateral lobes of the mesosternum posteriorly moderately widened, in the anterior part with parallel sides (Figure 1204).

2(3). Empodium between the claws of the tarsus very small, hardly perceptible (Figure 1258). Antennae in the ♂ 1.5 times, in the ♀ distinctly longer than the head with the pronotum; the length of their middle segments 3 times more than the width. Foveolae apparently elongate-triangular so that they are strongly narrowed in front and short-truncate. Tegmina long, reaching the middle of the hind tibiae. Length of body ♂ 19-24, ♀ 27-31 mm; tegmina ♂ 19-24, ♀ 24-30 mm. — Southern Kazakhstan in the north to Kzyl-orda, all the lowland part of Middle Asia, including southwestern Tadzhikistan *1. A. oxianus Uv.

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Uvarov, 1926, Eos, II:347; Uvarov, 1927 and 1928, Figures 104-106.

3(2). Empodium between the claws of the tarsus distinct, nearly or entirely equal to the length of half the claw (Figure 1259). Antennae shorter, in the ♂ hardly longer than the head with the pronotum, in the ♀ shorter than that; the length of a median segment 1.5-2 times more than the width. Foveolae weakly narrowed toward the anterior end, and there distinctly truncate.

4(5). Frontal ridge gradually tapered toward the fastigium, in the ♂ with sharp margins. Vertex completely acute-angular in the frons, the angle itself not at all rounded; carinae on the sides of the vertex posteriorly reaching the apices of the eyes, but farther on they are obliterated and not bent inward. Foveolae longer. The light band in the basal part of the subcostal field of the tegmina if developed, without vertexal specks or gaps. Hind tibiae in the basal third with a straw-colored band, in the median part usually bluish, the apical part often reddish. Length of body ♂ 18-20, ♀ 26-29 mm; tegmina

♂ 16.0-20.5, ♀ 23-25 mm. — China in the north to Port Arthur (?) and Peking, Taiwan, Japan, southeastern Asia, including the Philippines, Malay Archipelago, and Hindustan, Australia, incorrectly reported for southern Iran 2. A. tamulus (Fabr.)

Fabricius, 1798, Ent. Syst. Suppl. 195 (Gryllus) Jakobson, 1905 247 (Epacromia), Shiraki, 1910 21 (Epacromia)

- 5(4). Frontal ridge flat, wide, with blunt nearly parallel margins. Angle of fastigium in the ♀ slightly rounded (Figure 1212), lateral carinae on the vertex not reaching the eyes, slightly bent inward. Foveolae shorter. The light band in the basal part of the subcostal field of the tegmina, if developed, usually interrupted by dark specks. Hind tibiae colored as in the preceeding species, but with a dark ring before the middle and without the bluish median part. Length of body ♂ 15-23, ♀ 21-29 mm, tegmina ♂ 16-22, ♀ 18-28 mm. — South European part of the U. S. S. R., including all the Ukraine except the northwestern part, Kazakhstan, southwestern Siberia, Middle Asia, Transcaucasia, including the shores of the Black Sea, southern and partially Central Europe, North Africa, Hither Asia, China from Dzungaria to Lanchow in the province of Kansu and Suchou in the province of Kiangsu (Wu 1935). Variable individuals from the European part and from the Black-Sea shores differ from the Middle Asiatic by the slightly wider hind femora and by the red apical half of the tibiae, but the differences are not constant. Saline meadows, seedlings of irrigated crops, flies to light at night. Sometimes in Central Asia it slightly injures different crops on irrigated plots, in Lenkoran reported as injuring tea leaves. (Figures 1202, 1204, 1210, 1259, 1260) *3. A. thalassinus (F.) — Ordinary flying locust [Obyknovennaya letun'ya].

Fabricius, 1781, Spec. Insect., 1:367 (Gryllus) Jakobson, 1905 246 (Epacromia) Uvarov, 1927a 102, Figures 100 103 Tarbinskii 1940 29, 194
Biology Vel'tushchev 1940, Vestnik zashchity rastenii: 1 2 73, 75

- 569 6(1). Hind femora short and stout, of the same width as the tegmina (Figure 1261). Pronotum weakly narrowed in the anterior part and with no distinct constriction there, or the upper part of the pronotum is monochromatic. Space between the lateral lobes of the mesosternum widened caudad almost from the base.
- 7(8) ♂ antennae hardly longer than head and pronotum together, in the ♀ not shorter than that, middle segments twice longer than their own width. Hind tibiae, if rose colored, not more than in the apical third. Tegmina longer, when folded not appearing black, the light bands nearly equal in width to the dark median band and often reaching the posterior margin of the tegmina or the anal region. Pronotum moderately constricted in the anterior part. Length of body ♂ 18-21, ♀ 26-30 mm, tegmina ♂ 18-23, ♀ 25-28 mm — Southern Turkmenia, southwestern Tadzhukistan, Afghanistan, Iran, Hindustan, Mesopotamia, an asterisk Egypt, Somaliland, northern Uganda. Reported slightly injurious to geraniums in Tadzhukistan, in India it injures millet, sorghum, sugarcane *4. A. savignyi (Krauss),

Krauss, 1890, Verh. Zool. bot. Ges., Wien, XI:262 (*Heteropternis*), Uvarov, 1942:373. — *affinis* Bolivar, 1902, Ann. Soc. Ent. France, LXX:600 (*Epaeromia*), Uvarov, 1927a:101, Figures 98-99. — *deserticola* Uvarov, 1922, Journ. Bomb. Nat. Hist. Soc., XXVIII:358 (*A. strepens*).

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8 (7). ♂ antennae not much shorter, in the ♀ they are considerably shorter, than the head and pronotum, their middle segments nearly square. Hind tibiae red, not less than in the apical half. Tegmina shorter, when folded they appear black in the apical part; the light bands when folded they appear black in the apical part; the light bands triangular, considerably narrower than the dark spot between them, usually not reaching the anal region. Pronotum anteriorly not constricted, its dorsum hardly roof-shaped. Wings darkened on the apex. Hind femora on the outside along the ventral carina with distinct black punctures. Length of body ♂ 17-20, ♀ 21-28 mm; tegmina ♂ 16-18, ♀ 20-24 mm. — Southern Crimea, the Black Sea coast of the Caucasus, Transcaucasia; northern Iran, Asia Minor, Palestine, Roumania, southern Europe, North Africa. Reported as a pest of citrus plantings in Lenkoran and of different crops in the oases of Egypt (Figure 1261) *5. *A. strepens* (Latr.) — Dark-winged flying locust [Temnokrylaya letun'ya].

Latreille, 1804, Hist. Nat. Crust. Ins., XII:154 (*Acrydium*). Jakobson, 1905:246, Plate V (*Epaeromia*); Uvarov, 1927a:101; Tarbinski, 1940:29, 193.

168. Genus *Hilethera* Uv.

Uvarov, 1923, Ent. Monthly Mag., 3 (IX):82; Uvarov, 1925b 33, Uvarov, 1927a:103.

Type of genus: *Hilethera hietichonica* Uv., from Palestine.

Rather thickset, without an intermixture of green coloring, with short thickened antennae. Frons distinctly sloping even in the ♀, frontal ridge wide, flat, slightly depressed only near the ocellus, hardly narrowed at the fastigium; vertex wide, elongated, apex slightly roof-shaped. Median carina of pronotum distinct, interrupted by the posterior transverse groove, the posterior margin right-angled, the lateral carinae in the metazona not marked or hardly noticeable. Tegmina relatively wide; cubital field with a weak irregular spurious vein or without it, wide, in the ♂ always wider than the median [field]. M and CuA on the hindwings strongly approaching (except in *H. sudanica* Uv. from the Sudan). Hind femora very short and wide, black on the inside for the greater part, with 1 or 2 light bands; hind tibia significantly shorter than the femora; empodium between the claws very small, poorly marked. Subgenital plate in the ♂ short, bluntly conical.

Five species are known, one of them is distributed in Middle Asia, and another is known from Iran and Mesopotamia; only these 2 species are cited below, and they differ by the presence on the hind tibiae of alternating dark and light bands.

1 (2). Smaller, with shorter tegmina reaching only the middle of the hind tibiae. Hind femur on the inside with one light band at the distal end. Tegmina with 2 distinct dark bands, not reaching the posterior margin, and with a few small specks near the anterior margin of the apical

half, cubital field in the ♂ only 1.5 times wider than the median [field]. Length of body ♂ 16-18, ♀ 21.5-23.0 mm, tegmina ♂ 15.5-17.0, ♀ 19-20 mm. — Middle Asia, except the mts., lower course of the Syr Daria in southern Kazakhstan, western China (Turfan'), northern Iran, Afghanistan. Cases of slight infestation of vegetable seedlings in Tadzhikistan have been noted *1. H. turanica Uv.

Uvarov, 1925b 38, tab II, Figures 11-14 Uvarov, 1927a 104, Figures 108 110

- 2(1). Larger, with longer tegmina, reaching beyond the apex of the hind tibiae. Hind femora on the inside with 2 light bands in the apical part. Tegmina with 3 incomplete dark bands, the apical quarter with a few dark specks, cubital field in the ♂ twice wider than the median [field]. Length of body ♂ 19, ♀ 23 mm, tegmina ♂ 19, ♀ 24 mm. — Azerbaijan northern Mugan, northern Iran, Mesopotamia, report by Tarbinskii (1940) for Tedzhen in Turkmenia demands confirmation *2. H. maculata (Karny).

Karny, 1907, Verh. Zool. bot. Ges., Wien, LVII 285 (Aiolopus) Uvarov, 1927a 104, Figures 111-112. — buxtoni Uvarov, 1922, Journ. Bomb. Nat. Hist. Soc., XXVIII 360 (Lerina)

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169. Genus Eremoscopus B.-Bienko gen. nov

Well-proportioned, glabrous. Head (Figure 1209) in the ♂ with moderately sloping frons, but making a right angle with the sloping vertex, vertex elongated, with slightly raised lateral carinae and a longitudinal depression (Figure 1262), foveolae indistinct. Frontal ridge with nearly parallel sides, flat above the ocellus, eyes very large, more than twice as long as the subocular groove (Figure 1209), an imaginary line drawn through their lower margins will run distinctly below the median ocellus. Pronotum (Figures 1209, 1262) slightly widened caudad, but without a constriction, prozona nearly cylindrical, with indistinct blunt median carina, metazona nearly flat, slightly less than 1.5 times longer than the prozona with a thin but distinct median carina, shoulders not projecting, without carinae, the posterior angle nearly right, slightly rounded, posterior transverse groove distinct, intersecting the median carina, anterior groove evident on the sides of the prozona but not intersecting the carina. Lateral lobes of pronotum hardly higher than they are long, with broadly rounded postero-ventral angle. Space between the lobes of the mesosternum regularly tetragonal, 1.5 times wider than its own length and of the same shape as the lobe. Tegmina (Figure 1216) long, narrow, with distinct venation, median field a little wider than the cubital, spurious median vein straight, hardly approaching M on the apex, cubital field with rather regular cross-veins. Wings colorless near the base and without a dark band. Fore and middle legs rather long, well-proportioned, third segment of hind tarsi equal to the first, empodium between the claws very small, narrow. Tympanal lobe well separated, roundly obtuse-angular, covering a third of the tympanal-organ opening.

By the sparse venation of the tegmen and the sloping frons this genus is similar to representatives of the subfamily Acridinae, but the remaining

characters make it necessary to refer it to the subfamily Oedipodinae; it has some features of the genera Aiolopus Fieb. and Mioscirtus Sauss., sharply differing from them by the presence of important characters, especially large eyes.

A total of only 1 species belongs here.

- 1(1). A grayish-yellow band on the sides of the pronotum, base of anterior margin of tegmina, and some spots in their costal field brownish-black. Antennae monochromatic, nearly 1.5 times as long as the head with pronotum. Hind femora on the inside light, with a dark speck at the base and 2 dark bands in the median third, extending onto the dorsal aspect. Hind tibiae light. ♀ unknown. Length of body ♂ 17, tegmina 16 mm. —Western China: Kashgaria (type from Astyn in Turfan valley). (Figures 1209, 1216, 1262)
 1. E. oculatus B.-Bienko sp. n.

170. Genus Heteropternis Stål.

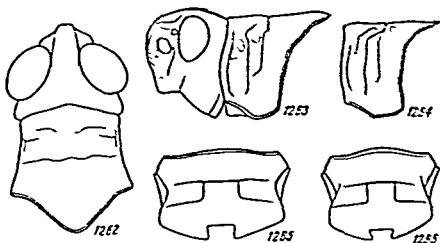
Stål, 1873, Recens. Orth., 1:128; Saussure, 1888-45, Jakobson, 1905:258.

Type of genus: Heteropternis respondens Walk.

Body with hairs. Vertex flat, anteriorly on the sides delimited by a carina; foveolae with an indistinct low margin, narrowly triangular, anteriorly reaching the fastigium; frontal ridge widened ventrad, in the ♂ frons slightly sloping. Pronotum (Figures 1263, 1264) in the prozona slightly roof-shaped, in the metazona nearly flat; median carina low, but sharp and distinct, weakly interrupted by a groove in front of the middle; anterior margin straight, posterior right angled. Tegmina dark, shining, usually with light translucent speckles; median field wide, spurious vein strongly approaching and parallel to CuA, the field in front of it with rather regularly situated strongly diagonal cross veins (Figure 1214). Wings without a dark band. Hind tibiae red; inner spurs on the apex of the hind tibia long, wide, with dense setae, on the apex sharply bent in the form of a hook; ventral spur 1.4-2 times longer than the dorsal, fully reaching the middle of the first tarsal segment (Figure 1217); empodium between the claws rather large, nearly or entirely equal to half the length of the claw. Tympanal lobe low, slightly separated.

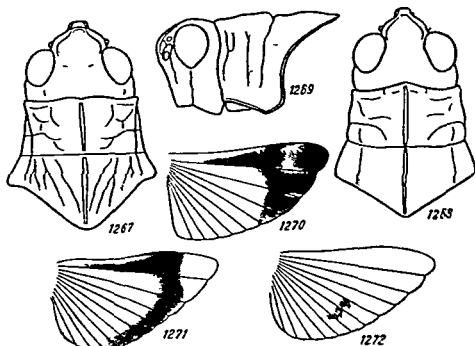
Around 15 species, distributed from Japan and China to South Africa and Australia. Only 3 species are cited below; they are known from countries adjacent to the U. S. S. R., especially from China where their distribution, however, has not been sufficiently studied.

- 1(2). Body well-proportioned. Antennae more slender and longer, in the ♂ 1.5 times, in the ♀ considerably, longer than head and pronotum; median segments 2-3 times longer than wide. Ventral margin of lateral lobes of pronotum in the posterior half sloping but straight, making a well marked, nearly or fully right angle with the posterior margin (Figure 1264). Tegmina narrower, their length in the ♂ 5.2, in the ♀ 5.7-5.9 times more than their own width. Wings yellowish near the base. Space between the lateral lobes of the mesosternum in the ♂ hardly wider than in the ♀ only 1.5 times wider than its length.



Figures 1262-1266
(Original)

1262—Eremoscopus oculatus B.-Bienko gen. et sp. n., ♂, head and pronotum from above (type), 1263—Heteropternis robusta B.-Bienko sp. n., ♀, head and pronotum from side (paratype), 1264—H. respondens Walk., ♀, pronotum from side (Luzon Island) 1265—H. robusta B.-Bienko sp. n., ♀, mesosternum and metasternum from below (paratype), 1266—H. rufipes Shir., ♀, ibidem (Pekan).



Figures 1267-1272
(Original)

1267—Celes variabilis Pall., ♀, head and pronotum from above, 1268—C. skalarubovi Adel., ♀, ibidem, 1269—Mioscirtus wagneri Kitt., ♀, head and pronotum from side, 1270—Oe. infumata B.-Bienko, ♂, right wing (paratype) 1271—Oedipoda germanica Latr., ♀, ibidem, 1272—Aerotylus insubricus inficitus Walk., ♂, ibidem.

Length of body ♂ 17-19, ♀ 21-23 mm; tegmina ♂ 17-19, ♀ 21-23 mm. —Hindustan, Ceylon, southeastern Asia, including the Philippines and Indonesia, southeastern China north to the Yangtse river, but the exact boundary is unknown, because it has been confused with the following species. 1. H. respondens (Walk.)

Walker, 1859, Ann. Mag. Nat. Hist. (3), IV:223 (Acridium), Kirby, 1914:141, Figure 101; Uvarov, 1925, Trans. Ent. Soc. Lond. 1377. —pyrrhoscelis Stål, 1873, Recens. Orth. 1:128; Saunders, 1888:46 (partly), Jakobson, 1905 258 (partim), —varia Walker, 1870, Catal. Derm. Salt. Brit. Mus. IV:774 (Epaeromia). —var. sincensis Saussure, 1888:46.

- 2(1). Body more thickset. Antennae stouter, in the ♂ hardly longer, in the ♀ not longer than the head with the pronotum, their middle segments 1.5-2 times longer than they are wide. Ventral margin of lateral lobes of pronotum in the posterior half rounded, making with the posterior margin an obtuse, in the ♀ broadly rounded, angle (Figure 1263). Tegmina wider; their length in the ♂ only 4.8-4.9, in the ♀ 5-5.5 times more than their width.
- 3(4). Space between the lateral lobes of the mesosternum very wide, in the ♂ 1.5 times, in the ♀ twice wider than it is long (Figure 1265). Eyes not so large; their vertical diameter in the ♂ less than 1.5 times, in the ♀ slightly longer than the subocular groove (Figure 1263). Frontal ridge around the ocellus with a deep but narrow depression and very wide blunt margins. Hind femora shorter and relatively wider, in the ♂ 3.3-3.4, in the ♀ 3.1-3.2 times longer than wide. Wings rose colored at the base. Length of body ♂ 17.5-19.5, ♀ 26-28 mm; tegmina ♂ 18-19, ♀ 22-23.5 mm. —China: Szechwan (type ♀ from Tatsienlu). (Figures 1214, 1217). 2. H. robusta B.-Blenko sp. n.
- 4(3). Space between the lateral lobes of the mesosternum not so wide, in the ♀ not much wider than long (Figure 1266). Eyes large, in the ♀ not less than 1.5 times longer than the subocular groove. Frontal ridge around the ocellus with a wide but weak depression and with narrow sharp lateral margins. Hind femora longer; their length in the ♀ 3.5 times more than their width. Wings yellowish at the base. Length of body ♂ 22.0-23.5, ♀ 26-29 mm; tegmina ♂ 19-21, ♀ 23.0-25.5 mm. —China: Peking, Taiwan; Japan, Ryukyu Is. 3. H. rufipes (Shiraki).

Shiraki, 1910, Acrid. Japans 37, tab. II, Figure 1 (Oedipoda). —varia Hebard, 1924, Trans. Amer. Ent. Soc. Lond. 1216 (nec Walker). —pyrrhoscelis var. b Saussure, 1888:47.

171. Genus Locusta L.

Linnaeus, 1758, Syst. Nat., ed. X, 1:431; Uvarov, 1921, Bull. Ent. Res., XII:135, 1927:114. —Pachytylus Fleber, 1853, Lotos, III:121, Jakobson, 1905:256.

Large. Frons quite perpendicular (Figure 34). Frontal ridge wide, nearly flat, but not widened near the median ocellus; vertex wide, not delimited anteriorly from the frontal ridge and extending roundly over into it;

mandibles blue. Pronotum without a light X-shaped marking, median carina well developed, in profile straight, slightly concave, or arcuate (Figure 34), intersected in the middle by only the posterior transverse groove, anterior transverse grooves weak, distinct only on the sides of the pronotum. Thorax ventrally with dense hairs making tomentum, space between the lateral lobes of the mesosternum longer than wide. Tegmina long, shining, the transparent apical part—with tetragonal network—makes up at least half the length of the tegmina; spurious median vein closer to CuA than to M. Wings monochromatic, without bands. Dorsal carinae of the hind femora very small but not densely dentate. Tympanal lobe large, sharply separated, covering half the opening of the tympanal organ (Figure 1215).

A total of one species is known—L. migratoria L., which is distributed as far as South Africa, Australia, and New Zealand and is subdivided into a number of subspecies. 3 subspecies are known from the boundaries of Europe and Asia, which are examined below, among the remaining subspecies the tropical L. m. migratorioides Reiche et Fairm., which is peculiar to the African tropics, has the widest distribution.

Every subspecies of this locust is known in two forms or phases depending on whether it lives a gregarious or a solitary way of life. It is capable of changing from one to the other, the former being the gregarious phase, and the latter the solitary phase. The phases differ from each other in the structure of the pronotum, in the ratio of the length of the tegmina to the length of the hind femora, and in body color, these differences do not show to the same degree in different subspecies, and are most sharply expressed in those subspecies which are distributed in tropical regions. The differences between the subspecies are based primarily on the characteristics of the gregarious phase, because the solitary phase in all subspecies has very similar characters, as a result of this, precise determination of subspecies is possible as a rule only in the gregarious phase and only the most northern subspecies—L. migratoria rossica Uv. et Zol.—can also be determined in the solitary phase.

As a result of the fact that there can be a change from one phase to the other, the differences between subspecies are based on rather variable characters, which do not show sharply, and it is difficult to make the usual description of characters, therefore, the description of the subspecies is given according to biometric data. For reliable and accurate determination of subspecies it is necessary to establish the averages of data on the following characters, taken from a series (even a small series) of one and the same sex (5-10 individuals) (1) length of a tegmen from the convex node [or joint, knot, etc.] at the base (at the site of union of C and Sc) to the apex, (2) length of hind femur, (3) tegmen/femur index, i.e., the ratio of length of a tegmen to the length of the hind femur, (4) height/head index, i.e., the ratio of height of pronotum (from the lowest point on the ventral margin of the lateral lobes vertically to the median carina) to the greatest width of the head in the ventral part of the genae.

We first give a key to differentiate the phases, intended chiefly for investigation here of the subspecies, and then a key for determination of the subspecies.

Key to phases of Locusta migratoria

- 575 1 (2). Pronotum saddle-shaped, that is with a distinct constriction with humeri sharply projecting in the metazona and with a low, median carina in profile straight or slightly concave (Figure 34, cm); its anterior margin slightly rounded, posterior margin obtuse-angularly rounded. Hind femur shorter in relation to the tegmina; in the ♂ the length of a tegmen is not less than double the length of a hind femur (t/f index in the ♂ 2.0-2.17). Hind tibiae yellowish. Nymphs orange-yellow or in the younger instars grayish black, always with velvety black bands on the pronotum (Figure 33).
- 2 (1). Pronotum without the constriction, with humeri weakly projecting in the metazona and high, in profile arcuate, median carina, i. e., roof-shaped (Figure 35) solitary phase; its anterior margin angular, posterior margin right-angled. Hind femora relatively longer, at least in the ♂ longer than half the tegmina (t/f index in the ♂ 1.8-1.9). Hind tibiae usually red. Nymphs without admixture of an orange color and without the velvety-black bands on the pronotum, monochromatically green, brown, gray, or black (Figure 32).
- 1. L. migratoria L. ph. gregaria—gregarious phase.
- 2. L. migratoria L. ph. solitaria—solitary phase.

Key to Subspecies L. migratoria

- a(b). The gregarious and solitary phases are similar in the form of their pronotum and t/f index; the median carina of the pronotum in the gregarious phase is straight, not concave; the t/f index in the ♀ of the gregarious phase is always less than 2.0 (1.8 on an average), in the ♂ it does not go above 2.0 on an average even in the gregarious phase. The h/h [height of pronotum to width of head] index in the gregarious phase is equal to 1.21-1.22 on an average. Body not very large; length of ♂ 29-40, ♀ 37-52 mm; tegmina ♂ 33.4-33.8 (average 38.0), ♀ 36.3-53.7 (average 47.0) mm; hind femur ♂ 17.8-22.8 (average 20.0), ♀ 20.0-26.8 (average 23.5) mm. —Podzolic forest region of the European part of the U. S. S. R.; sometimes multiplies in great numbers in the Tatar A. S. S. R., in the basin of the middle course of the Oka river (Mordovian A. S. S. R., Ryazan and Tambov Regions), along the left bank of the Voronezh river and on the Desna river (Chernigov, Gomel, Briansk, and Orel Regions). This same subspecies and forms transitional to it are known from the central parts of Western Europe (Alps, West Germany, and eastern Holland). Stays on light soils, depositing its eggpods predominantly in stubble of summer grain crops and "young" wastelands; reproduction in great numbers occurs at large intervals of time after 2-3 hot dry summers; it can be greatly injurious at this time.
- #1a. L. migratoria ros-sica Uv. et Zol. —Middle Russian locust [*Srednerusskaya sarancha*].

Uvarov and Zolotarevskii, 1929, Bull. Ent. Res. XX, 263, Bei-Bienko, 1940 109 —danica Predtechenskii, 1928a 184 (nec Linnaeus) Mishchenko, 1940, Doklady Vsesoyuznoi Akademii sel'skokhozyaistvennykh nauk, 8 42 (not Linnaeus)

Biology Predtechenskii, 1928a:113-119, Predtechenskii, 1930a 3-49 Predtechenskii, 1939b 149-159 Bei-Bienko, 1940 109-111, Waloff, 1940 214, 215, 218, 223, 242; Aleinikova, 1950.209-258.

b(a). Gregarious and solitary phases sharply differing in the form of the pronotum and the t/f index; the median carina of the pronotum in the gregarious phase concave or straight, t/f index in both sexes distinctly greater than 2.0 (2.11-2.16 on an average). H/h index in the gregarious phase averaging from 1.08 to 1.16 (fluctuating from 0.92-1.27).

c(d). Larger. Median carina of pronotum in the gregarious phase straight or slightly concave (Figure 34 cm). H/h index in both sexes of the gregarious phase equal to 1.05-1.22 (average 1.16). Length of body ♂ 35-50, ♀ 45-55 mm, tegmina ♂ 43.5-56.0 (average for gregarious phase 50.0, solitary phase 47.0), ♀ 49.0-61.0 (average for gregarious phase 53.5, solitary phase 58.0) mm, hind femur ♂ 22.0-26.0 (average 23.5), ♀ 20.0-32.0 (average for gregarious phase 24.5, solitary phase 29.0) mm. —South European part of the U. S. S. R., including the steppe region, Transcaucasia, Kazakhstan, Middle Asia, Ussuri Region, separate individuals fly up to Leningrad, Moscow, Omsk, southeastern Europe, Hither Asia, western China, Mongolia, Manchuria, and, probably, Korea, in southern Europe there are transitional forms of the preceding subspecies. It makes its nests on the banks of rivers, lakes, and seas, in marshy meadows with reedy overgrowths where it often reproduces en masse, it may fly far beyond the limits of its nesting places and greatly damage cultivated plants. (Figures 7, 16-20, 25, 32-34, 1215). *1b. L. migratoria migratoris L. —Locust of passage or Asiatic locust [Pereletnaya ili Aziatskaya sarancha].

Linnaeus, 1758, Syst. Nat., ed. X, I 432 (Gryllus Locusta) Jakobson, 1905 257, Plate VI (Pachytylus) (partim), Uvarov, 1921b 135 150, Figures 1-3, 7 Uvarov, 1927a 115, Figures 126-129 Tarbinskii, 1940 30, 200 —danica Linnaeus, 1767, Syst. Nat., ed. XXII, I 702 (Gryllus Locusta) Jakobson, 1905.257 (Pachytylus) (partim).

Biology Nikol'skii, 1925 Uvarov, 1927b.239 259, Figure, Olsuf'ev, 1940 91-147 Predtechenskii Z Zhdanov, and Popova, 1935 7-43 Bei-Bienko, 1937:110 111 Zakharov, 1948:148-171, Shumakov 1940: 10-15, Waloff, 1940 211-246 Zakharov, 1946a 168-173 Zakharov, 1950 47-102

d(c). Smaller. Median carina of pronotum in the gregarious phase concave. The h/h index in the gregarious phase is equal to 0.92-1.27 in the ♂ (average 1.1), in the ♀ it is 0.95-1.15 (average 1.08). Length of tegmina in the ♂ 32.3-46.8 (average for the gregarious phase 42.6), ♀ 39.2-51.8 (average for gregarious phase 45.8) mm, hind femur ♂ 17.5-21.4 (average for gregarious phase 20.8), ♀ 19.0-28.7 (average for gregarious phase 21.3) mm. —Coastal regions of eastern China to the gulf of Chihli in the north (39° north lat.), Taiwan, Indochina, Malacca Peninsula, the Philippines, Indonesia the Japanese subspecies is unknown. Lives under conditions similar to the preceding subspecies, and is also a dangerous pest to cultivated plants. 1c. L. migratoria manilensis (Mey.) —Eastern locust of passage [Vostochnaya pereletnaya sarancha].

172. Genus Oedaleus Fieb.

Fieber, 1853, Lotos, III:126; Jakobson, 1905:255, Uvarov, 1927a:116; Bel-Buenko, 1941, Zapiski Leningradskogo sel'skokhozyaystvennogo instituta, 4:155.

Type of genus: Oedaleus decorus Germ.

Usually greenish or the color of dry grass, almost bare. Head with absolutely perpendicular or slightly sloping frons; vertex nearly flat, triangular, anteriorly blunted, foveolae small, short-triangular, indistinct, or obsolescent. Pronotum short (Figure 1218), usually with well marked light X-shaped marking, with a constriction in the middle; anterior margin straight or hardly perceptibly obtuse-angular, posterior margin projecting at an obtuse angle or rounded; median carina entire or slightly intersected by the posterior transverse groove, distinct for all its length but not high, in profile straight or slightly arcuate. Height of lateral lobes of the pronotum distinctly greater than their length. Thorax ventrally bare or with very sparse hairs. Tegmina long, the apical half shiny, transparent and with tetragonal cellules, in the basal half with a rather loose network of veins; median field narrower than the cubital, with rather regular cross-veins in front of the spurious median vein, the spurious vein itself approximately equidistant between M and CuA, sometimes only in the basal part slightly closer to CuA than to M (Figure 1219). Wings with a dark band, in the basal part yellowish or greenish yellow. Hind femur rather well-proportioned, its dorsal carina entire. Tympanal lobe small, low, weakly separated, covering less than 1/3 of the opening of the tympanal organ.

More than 20 species, predominantly distributed in Africa, but a few species are peculiar to Australia, central and southern Asia, and some reach southern Europe. Six species are considered below:

- 1 (10). The light bands of the X-shaped marking of the pronotum never project in the form of raised ridges, or this marking is effaced. The dark band of the wings anteriorly reaches the anterior margin of the wing. Space between the lateral lobes of the mesosternum equal to the width of the lobes or even narrower than that.
- 2 (5). Pronotum with a weak constriction; sides of metazona not projecting in the form of roundly convex humeri; light bands of the X-shaped marking (if it is developed) wider in the metazona than in the prozona. Ventral margin of lateral lobes of pronotum in the anterior part sloping, in the posterior part nearly or entirely horizontal. The dark band of the wings touching their posterior margin, often weak; apex of wing often shadowed in the σ .
- 3 (4). Frontal ridge in the dorsal part weakly punctate; anterior margin of fastigium distinctly marked by a thin ridge separating the vertex from the frontal ridge. The dark band on the wings narrow, sometimes nearly disappearing. Hind femur in the φ ventrally, and the hind tibiae brownish-yellow.
 *1. Oe. infernalis Sauss.

- a (d). Body of small dimensions (σ 18-23, φ 30-35 mm).
 b (c). Hind femora in the σ ventrally yellow. Median segments of antennae in the σ longer, 2-2.5 times longer than they are wide. Length of tegmina in the σ 18-22, φ 26-31 mm. —Ussuri Region, North China including Manchuria, North Korea, southern Mongolia (?). Reported as a pest of cultivated plants in Ussuri Region
 *1a. Oe. infernalis amurensis Ikonn.

Ikonnikov, 1911, Ezhegodnik Zoologicheskogo muzeya Akademii Nauk, XVI 255 Bei-Bienko, 1941, Zapiski Leningradskogo sel'skokhozyaystvennogo Instituta, 4 153, 155 —7 var minor Saussure, 1888:39 (Oe. marmoratus)

- c (b). Hind femora in the σ ventrally red. Median segments of antennae shorter, only 1.5-2 times longer than wide. Length of tegmina σ 16.5-20.0 mm, (φ unknown). —China: Szechwan, Nan Shan mts., and range of Burkhan-Budda (type).
 1b. Oe. infernalis montanus B. —Bienko subsp. n.
 d (a). Body larger. Hind femora ventrally, at least in the σ , red. Length of body σ 25-27, φ 35-42 mm, tegmina σ 23-26, φ 32-36. —Korea (without the northern part), northeastern China, Taiwan, Japan, and Ryukyu Is. Reported as a pest of rice in Taiwan
 1c. Oe. infernalis infernalis Sauss.

Saussure, 1884 117, Jakobson, 1905 255 Bei-Bienko, 1941, Zapiski Leningradskogo sel'skokhozyaystvennogo Instituta, 4:152, 155, Figure 1

- 578 4 (3). Frontal ridge in the dorsal part coarsely punctate, anterior margin of fastigium not marked or hardly marked. The dark band on the wings wider. Hind femora ventrally and the hind tibiae in the φ (as well as in the σ) red. Hind tibiae in the σ with a sharply marked, wide, yellow ring near the base without an intermixture of red coloring. Length of body σ 21.5-27.0, φ 31-39 mm, tegmina σ 21.6-26.7, φ 29.5-34.5 mm. —China: Szechwan, Chekiang, Kweichow, and Yunnan
 2. Oe. manjius Chang.

Chang 1939, Notes Entom. Chinoise, VI 21

- 5 (2). Pronotum with a strong, well-marked constriction, sides of metazona distinctly projecting in the form of roundly convex shoulders; light bands of the X-shaped marking in the metazona thin, not wider or even narrower than in the prozona (Figure 1218). Ventral margin of lateral lobes of pronotum in the anterior part sloping, in the posterior part widely rounded and sloping. The dark band of the wings sharp, not touching their posterior margin.
 6 (9). Hind femora black inside with 2 light (sometimes indistinct) bands. Antennae shorter, in the σ not more than 1.5 times longer than the head with the pronotum, in the φ not longer than they are, length of median segments only 1.5-3 times more than their width. σ cerci longer, weakly narrowing toward the apex, longer than supraanal plate.

- 7 (8). Hind tibiae brownish-yellow or reddish; in the latter case the light band near the base of the tibiae without an intermixture of red coloring. Carina of pronotum higher, in profile arcuate, in the metazona very stout and strongly widened in front because of the presence of longitudinal oblique depressions on its sides; posterior margin of pronotum almost or entirely right-angled (Figure 1218). The light bands of the X-shaped marking intersect each other at their imaginary union, at a right angle (Figure 1218); anterior band when seen from the side with a very oblique situation. Length of body ♂ 18-31, ♀ 25-43 mm; tegmina ♂ 17-33, ♀ 25-40 mm. —All the steppe belt of the European part of the U. S. S. R. (the reports for the region of Klin-Ul'yanin 1869—and the middle course of the Vyatka south of Molotovsk—Tarbinskii 1931—evidently incorrect!), southern belt of western Siberia to Kurgan, Omsk, and the steppes near the Altai, Kazakhstan, all of Middle Asia, Transcaucasia; southern Europe, North Africa, Hither Asia, Dzungaria; the report for northeastern China (Chang 1949) belongs to the following species. Dry grassy steppes, in the South also among richer vegetation. Sometimes a pest of young crops and pastures of southeastern European part of the U. S. S. R., in Kazakhstan, and in Middle Asia. (Figure 1219) *3. Oe. decorus (Germ.) ✓
—Black-striped 'young mare' grasshopper [Chernopolosaya kobyłka].

Germar, 1817, Fauna Ins. Europ., XII, tab. 17 (Acrydium), Uvarov, 1927a:117, Figure 130, Tarbinskii, 1940:30, 199. —nigrofasciatus Jakobson, 1905:255, Plate VI (nec De Geer!).

Biology: Ivanov, 1934:113-123.

- 570 8 (7). Hind tibiae red, their light band near the base indistinct, always with a reddish tinge. Carina of pronotum not high, in profile completely or almost straight, in the metazona not thick and hardly widened forward; posterior margin of pronotum roundly obtuse-angled or obtuse-angled. The light bands of the X-shaped marking at their imaginary union intersect each other at a very obtuse angle; the anterior band when seen from the side has a nearly horizontal situation. Length of body ♂ 21-24, ♀ 28-32 mm; tegmina ♂ 20-24, ♀ 27-31 mm. —Altai, Minusinsk depression, Sayan Mountain Range, Tuva Region, southern Transbaikalia; Mongolia to Ordos, northeastern China. Pest of pasture vegetation in Transbaikalia. *4. Oe. asiaticus B.-Blenko. ✓

Bei-Blenko, 1941, Zapiski Leningradskogo sel'skokhozyaistvennogo instituta, 4:152, 156, Figures 2, 3c.

- 9 (6). Hind femora yellow on the inside, sometimes with dark bands. Antennae longer, in the ♂ nearly twice, in the ♀ 1.5 times longer than the head with the pronotum; length of median segments 2.5 to 4 times more than their width. ♂ cerci short-conical, not longer than the supraanal plate. The light X-shaped marking on the pronotum, as in the preceding species; posterior margin of pronotum rounded, now and then slightly obtuse-angled. Length of body ♂ 15-20, ♀ 22-32 mm, tegmina ♂ 18-25, ♀ 24-34 mm. —Transcaucasia,

Turkmenistan, Tadzhikistan, southern Uzbekistan, Kashmir,
Punjab, Hither Asia, subtropical Africa to Senegal.....
.....*5. Oe. senegalensis (Krauss).

Krauss, 1877, Sitzb Akad Wiss Wien Math -Nat Cl, LXXVI, 1 56, tab 1, Figures 9, 9A (Pachytylus) Uvarov, 1927a 118, Figure 131 Tarbinskii, 1940 30, 200 —mlokoslewitchi Bolivar, 1884 C R Soc Ent Belg, XVIII CV (Pachytylus) Jakobson 1905 256

- 10(1). The light bands of the X-shaped marking of the pronotum very distinct, situated on slightly raised ridges. The dark band of the wings not complete, anteriorly not reaching the anterior margin of the wing Space between the lateral lobes of the mesosternum wider than the lobes themselves, strongly widened caudad. Fastigium nearly completely flat. Body small. Length of body ♂ 13-16, ♀ 20 0-23 5 mm, tegmina ♂ 15-16, ♀ 19-21 mm —India, Ceylon, southern and central China from the island of Hainan in the south to the province of Hupeh in the north, the report for Peking (Wu, 1935) demands verification .. 6 Oe. abruptus (Thunb.)

Thunberg, 1815, Mem Acad St Petersburg, V 233 (Gryllus) 1824, IX-412, tab 15, Figure 5 (Gryllus) Stal 1873, Recons. Orthopt, I 127 (Pachytylus) Saussure, 1884 110 117 Kirby, 1914 144 Chang 1939 Notes Entom Chinoise, VI 20, 31

173 Genus Gastrimargus Sauss.

Saussure, 1884 109 Jakobson, 1905 254 Sjostedt 1928, Kungl. Svenska Vetenskapsak. Handl. (3) 65.

Type of genus: Gastrimargus verticalis Sauss. from South Africa

Like Oedaleus Fieb., but differs by the following characters. Foveolae, if perceptible, are elongate triangular Pronotum (Figures 1213, 1220) longer, with very sharp, lamellately raised, and in profile often slightly arcuate, median carina, transverse groove, if present on the sides of the plate-like carina, strongly bent obliquely caudad, the light X-shaped marking absent, more rarely present, but then it is either elongated or indistinct, posterior and anterior margins of pronotum strongly projecting at an angle, and the posterior angle is always acute and stronger than the anterior. Median field of tegmina not narrower than the widest 580 apical part of the cubital field spurious median vein on all its extent closer to M than to CuA (Figure 1221) The dark band on the wings completely developed or in some tropical species, it is incomplete or entirely absent. Dorsal carina of the hind femora in large individuals finely dentate

More than 40 species are known, peculiar almost exclusively to the Tropics, especially Africa. Only 4 species are cited below, they come up into the limits of the Palearctic Region.

- 1(2). Hind femora ventrally and on the inside dirty yellow, sometimes brownish-black only in the basal third of the inner aspect. Vertex with a sharp longitudinal carina. Pronotum strongly projecting caudad in the form of an acute angle (Figure 1213), transverse groove on the sides of the platelike median carina distinct in both sexes (Figures 1213, 1220) and often distinctly cutting into the

dorsal margin of the carina itself. Length of body ♂ 26-30, ♀ 36-46 mm; tegmina ♂ 25-31, ♀ 36-46 mm. —China in the North as far as Peking and Szechwan, southern Korea (!), Japan, Kashmir, southeastern Asia, Africa . . . 1. G. marmoratus (Thunb.)

Thunberg, 1815, *Mém. Acad. St. Pétersb.*, 5 232 (*Gryllus*). Jakobson, 1905:256; Sjöstedt, 1928, cited publications, 33; tab. 6, Figure 5, tab. 7, Figures 1-8, tab. 12, Figure 1. —*transversus* Thunberg, 1815, cited publications, 233 (*Gryllus*). —*virescens* Thunberg, 1815, cited publications:245 (*Gryllus*). —*assimilis* Thunberg, 1815, cited publications:246 (*Gryllus*). —var. *sundatcus* Saussure, 1884 113 (*Oedaleus*). —var. *grandis* Saussure, 1888-39 (*Oedaleus*).

- 2(1). Hind femora on the inside if only in the basal half, black or dark blue-black. Vertex without longitudinal carina or with a weak one. Pronotum less acute-angled behind, making almost a right angle.
- 3(6). Tegmina distinctly extending beyond the hind genua, at least in the ♂ not less than for the length of the pronotum. The dark band on the wings is distinct, not joining the dark apical spot, or the whole apical half of the wing is translucent.
- 4(5). Hind femora ventrally light, sometimes with a faint bluish tinge. Pronotum distinctly constricted in the middle; its median carina entire, without signs of incision by the transverse groove; the transverse groove itself in the ♂ semi-obsolescent and almost unmarked even on the sides of the plate-like median carina. The basal light band of the tegmina is narrower than the median and may not reach the anal region of the tegmina caudad. Wings with a dark spot on the apex, sulphur yellow at the base. Length of body ♂ 23-24, ♀ 36-38 mm; tegmina ♂ 23-24, ♀ 31-33 mm, — Kashmir, Punjab, western Pakistan (type ♂ from Ziarata). 2. G. sulphureus B.-Bienko sp. n.

—*minor* Sjöstedt, 1928, cited publications 15, 26, tab. 4, Figure 2 (not Saussure). Uvarov, 1933, *Trudy Zoologicheskogo Instituta AN SSSR*, (1932), 1:198 (pec Saussure).

- 5(4). Hind femora ventrally blue-black (sometimes in poorly-preserved or old museum specimens this color is not distinctly marked). Pronotum without a distinct constriction; its median carina distinctly cut into by the transverse groove on the dorsal margin, this groove being also marked on the sides. The basal light band of the tegmina triangular, anteriorly not narrowed or even wider than the median light band, caudad reaching the anal region of the tegmina. Wings not apically darkened, or partially darkened, or with small dark speckles. Length of body ♂ 26-27, ♀ 35-38 mm, tegmina ♂ 27-30, ♀ 35-36 mm. —Peninsula of Hindustan north to the Himalayas, Ceylon, southern Tibet (the basal subspecies in Africa). 3. G. africanus orientalis Sjöst.

Sjöstedt, 1928, cited publications:11, 41, tab. 8, Figures 6, 7.

- 6(3). Tegmina shorter, in the ♀ they hardly extend beyond the genua, in the ♂ they do extend beyond it for less than the length of the pronotum. The dark band of the wings is connected with the apical spot if only along the anterior margin of the wing, or in the ♂ the whole

apical half of the wing is darkened, but gets lighter in front of the apex. Hind femora ventrally dirty black. Pronotum almost without a constriction, median carina along the dorsal margin not intersected by the transverse groove. Length of body ♂ 19.5-23.0, ♀ 28-38 mm, tegmina in the ♂ 19-22, ♀ 28-29 mm. —China Szechwan, Yunnan, and eastern Tibet (province of Sikan) 4. G. nubilis Uv.

Uvarov, 1925, Journ. z. Proc. Asiat. Soc. Bengal, XX 325, Uvarov, 1939, Linn. Soc. Journ., Zool., XL 564 —africanus sinensis Willemsse, 1933, Natuurhist. Maandblad, XXII 15, Figure 1

174. Genus Scintharista Sauss.

Saussure, 1884:121 Jakobson, 1905:251 Uvarov, 1927a:118 —Quiroguena Bolivar, 1886, An. Soc. Espan., 15 515, Jakobson, 1905:251

Type of genus: Scintharista notabilis Walk.

Of an ocher [or earthy] color, nearly bare. Vertex with sharply raised carinate sides, elongate, depressed, foveolae indistinct, small, triangular, with a weakly delimited ventral margin. Pronotum (Figure 1222) short, with a constriction, dorsally roof-shaped, median carina not high but distinct for all its length, slightly but distinctly intersected in the middle by the transverse groove, anterior margin slightly projecting at an angle, posterior margin moderately obtuse-angled, height of lateral lobes significantly more than their length. Tegmina (Figure 1223) in the basal half leathery, dull with dense irregular venation, in the apical half membranous and shining, with sparser and more regular venation, median field on the apex hardly narrower than the cubital, spurious median vein in the apical half closer to M than to CuA, the field before it with irregular veins, partly forming a network. Wings with a dark band touching the posterior margin, and a darkened apex. Hind femur with small denticles on the dorsal carina. Tympanal lobe small, low.

Three species are known of which one—S. notabilis Walk.—is distributed from northwestern India and Pakistan to Spain, Morocco, and the Canary Islands and has been subdivided into 7 subspecies, only 4 of the subspecies are cited below, they are known from the U. S. S. R. and adjacent countries. Other species have been described from the Island of Taiwan and from South Africa.

- a(b). Hind tibiae orange-red. Tegmina in the apical half with small scattered speckles, without dark and light bands, the ends of the tegmina not darkened. Wings in the ♂ light red, in the ♀ light greenish-yellow, in both sexes with a dark blue tinge on the inner margin, the dark band in the ♂ is narrow, in the ♀ it is wider. Length of body ♂ 26-28, ♀ 39-42 mm, tegmina ♂ 25-28, ♀ 38-41 mm. —Palestine, Arabia.
 1a. Sc. notabilis blanchardiana (Sauss.)

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Saussure, 1888:35 (Quiroguena) Jakobson, 1905:252 (Quiroguena) Uvarov, 1941, Proc. Ent. Soc. Lond., (B) 10:95, tab. 1, Figures C, D.

- b(a). Hind tibiae rather dirty white or yellowish. Tegmina in the apical half with dark and light bands and with a darkened end, even if only slightly so. Wings yellow or light red; in the latter case without the bluish tinge on the inner margin.
- c(d). Wings light red; the dark band narrow, making up only 0.11-0.14 of the length of the anal vein (1A) separating the anterior and anal lobes of the wing. The narrow light band of the tegmina, first from the base, is very weak or absent, therefore the first dark band from the base and the second (median) dark band are nearly or entirely fused, jointly occupying the basal half of the tegmina. Length of body ♂ 25-30, ♀ 36-40 mm; tegmina ♂ 25-31, ♀ 34-38 mm. —Iran: Khorasan; western Pakistan; northwestern India . . . 1b. Sc. notabilis pallipes Uv.

Uvarov, 1941, Proc. Ent. Soc. Lond., (B) 10:95, tab. 1, Figure B.

- d(c). Wings bright lemon yellow; the dark band wide, forming 0.16 of the length of the anal vein (1A). Tegmina in the basal half with 2 wide dark bands, separated by a light band.
- e(f). Hind tibiae rather dirty white. Dark and light bands of tegmina indistinct; the first ones diluted with light speckles, especially 1/3 of the distance from the base. Length of body ♂ 25-27, ♀ 37-39 mm; tegmina ♂ 27-29, ♀ 39-40 mm. —Iran: Shahrud; northwestern India, Kashmir (possibly a separate subspecies). 3c. Sc. notabilis brunneri Sauss.

Saussure, 1884:121 (partim); Jakobson, 1905:251 (partim); Uvarov, 1927a:119 (partim); Figure 132; Uvarov, 1941, Proc. Ent. Soc. Lond., (B) 10:96, tab. 1, Figure E.

- f(e). Hind tibiae yellow. The dark bands of the tegmina very distinct, nearly black, even the third band (the one furthest from the base) has no light speckles; the light bands also very distinct. Dimensions as in the preceding. —Transcaucasia: valley of the Araks. (Figures 1222, 1223). *4d. Sc. notabilis miramae Uv.

Uvarov, 1941, Proc. Ent. Soc. Lond., (B) 10:96, tab. 1, Figure F.

175. Genus Psophus Fieb.

Fieber, 1853, Lotos, 3:122, Jakobson, 1905:249, Uvarov, 1927a:114. —Acrydium Roberts, 1941:19.

Bare, weakly roughened, ventrally or all black. Vertex wide, slightly convex, without carinae on the sides, lateral ocelli situated at the margin of the vertex, no foveolae; frontal ridge wide, flat, obliterated below the ocellus. Pronotum weakly rugose, without a constriction, dorsally roof-shaped; median carina sharp, entire, in profile slightly arcuate, on the sides of the median carina 2 depressions; anterior margin straight, 583 the posterior right-angled, with rounded apex. Tegmina wide, opaque, with irregular cross veins everywhere in the ♂ extending a little beyond the

hind genua, in the ♀ moderately shortened, not reaching the tip of the abdomen. Wings with strongly sinuous outer margin, brightly colored, with a dark apex, the 2 longitudinal veins of the second (anal) lobe situated closer to its posterior margin. Empodium between the tarsal claws rather large, equal in length to half the claw.

Only one species is known.

- 1 (1). Wings cinnabar-red, ♂♂ black or dark brown, the ♀ brown or yellow-gray. Hind tibiae black or brown, with a light ring at the base. Length of body ♂ 23-25, ♀ 30-40 mm, tegmina ♂ 24-27, ♀ 18-23 mm. —Forest and forest-steppe region of the European part of the U.S.S.R. north to the Ukraine, the Caucasus, southern Siberia to Ussuri Territory, northern Kazakhstan, all the northern and partly the central part of Europe, south in the mountains, Mongolia, Manchuria, Korea. (♂♂ rattles in flight) *Psophus stridulus (L.)—Fiery rattling locust [Ognevka treskuchaya].

Linnaeus, 1758, Syst Nat., ed. X, 1:432 (Gryllus Locusta) Jakobson, 1905:249, Plate VI and X Uvarov, 1927a:114

176. Genus Pyrgodera F.-W.

Fischer Waldheim, 1846:272 Jakobson, 1905:250 Uvarov, 1927a:112

Bare, strongly laterally compressed, nearly smooth. Vertex flat, long, with carina on the sides, foveolae flat, triangular, indistinct, lateral ocelli situated considerably lower than the margin of the vertex, frontal ridge with sharp margins, reaching the lower limits of the frons, which in the ♂ is slightly sloping. Pronotum (Figure 1224) large, with unusually high, plate-like median carina which is strongly arcuate in profile, the transverse groove slightly marked on the sides of the plate-like carina, but not intersecting it, anterior and posterior margins of pronotum projecting at an acute angle. Tegmina long, leathery except at the apical 1/3, opaque. Wings brightly colored, with a wide black band, sending off a short arm toward the base at the anterior margin. Dorsal carina of hind femora in the basal half not much higher than in the remaining part. Tympanal lobe low, weakly developed. Subgenital plate in the ♂ sharply conical.

One species is known.

- 1 (1) Clay yellow, more rarely brownish, sometimes nearly black. Tegmina with 2 dark bands in the basal half. Wings bright red at the base. Hind tibiae yellow. Length of body ♂ 25-30, ♀ 35-40 mm, tegmina ♂ 27-32, ♀ 33-38 mm —Middle Volga Region, Astrakhan Region, Kazakhstan, except the forest steppe part, all the lowland of Middle Asia, Transcaucasia, all Hither Asia. Desert and semi-desert. Nymphs greenish, with an enormous ridge on the pronotum (Figure 1224) *1. P. armata F.-W —Combbearing grasshopper [Grebnevka].

Fischer Waldheim, 1846:273, tab. 21, Figures 1-2, Jakobson 1905:250 Uvarov, 1927a:112, Figure 116 Tarbinskii, 1940:30, 198

177. Genus Brunnerella Sauss.

Saunders, 1888:31; Jakobson, 1905:250; Uvarov, 1927a:112; Tarbini, 1940:195.

Antennae long, slender, even in the ♀ twice as long as the head and pronotum. Vertex wide, strongly narrowed cephalad with sharp raised margins; foveolae distinct, large, nearly dorsal [or apical]; occiput with a longitudinal carina and transverse rugulae. Pronotum short, granularly roughened, with very high plate-like median carina which is slightly sinuous along the dorsal margin, not intersected (Figure 1225). Wings brightly colored, with a wide black band sending off a branch toward the base of the wing. Hind femora long, the dorsal margin entire.

Only one species, Br. mirabilis Sauss., is known. It has been subdivided into two subspecies.

- a(b). Wings red near the base. Body gray, with dark spots and striations, the tegmina with 2-3 black bands. Hind tibiae yellowish, with black dots. Length of body ♂ 25-35, ♀ 35 - 40 mm; tegmina ♂ 22-24, ♀ 28-30 mm. —Transcaucasia: Armenia and the valley of the Araks and Ordubad; Turkmenia: Kopet Dag; northern Iran. Rocky slopes of mountains with very sparse vegetation (Figure 1225). *1a. Br. mirabilis mirabilis Sauss.

Saunders, 1888, 31, tab. II, Figure 1; Jakobson, 1905:250, Uvarov, 1927a:113, Figures 117, 125.

- b(a). Wings pale-yellow near the base. The remaining characters as in the typical form. —Northeastern Iran: Khorasan. 1b. Br. mirabilis siasovi Mor.

Moriz, 1928, Materialy po obledovaniyu saranchevykh Severnoi Perzii za 1926 i 1928g., Ashkhabad (Investigations on the locust family in Persia in 1927-1928, Ashkhabad), 39.

178. Genus Ptetica Sauss.

Saunders, 1884:133, Jakobson, 1905:260, Uvarov, 1927a:120.

Bare, laterally compressed, nearly smooth. ♂ antennae rather stout. Vertex elongated, depressed, with raised lateral margins, no foveolae. Pronotum (Figure 1227) with a sharp, platelike median carina, sharply interrupted by a transverse groove; in the prozona the carina is higher, in the metazona it gradually descends toward its posterior angle and here almost disappears; anterior margin of pronotum projecting above the occiput in the form of an obtuse angle, posterior margin acute-angled. Tegmina rather wide, in the basal half slightly leathery, membranous in the apical half. Wings brightly colored, with a wide black band and with a short branch at the anterior margin directed toward the wing-base. Dorsal margin of hind femora entire, i. e., without a ledge beyond the middle; third segment of hind tarsi shorter than the first. Tympanal lobe low, weakly developed.

In habitus this genus is very reminiscent of *Pyrgoderes* F.-W., but it is closer to *Mioscirtus* Sauss. and *Oedipoda* Latr.

One species.

- 585 1 (1). Clay-yellow or yellowish brown, tegmina with sharp dark bands, separated by 2 narrower light interspaces. Wings red in the basal half. Hind femora yellow on the inside without dark bands. Length of body ♂ 24, ♀ 29 mm, tegmina ♂ 24, ♀ 28 mm. —Southern Kazakhstan Kzyl-orda, valley of the Ilu river, Alakul depression, Uzbekistan region of Tashkent. (Figure 1227) *1. *P. cristulata* Sauss.

Saussure, 1884:133 Jakobson 1905:260, Uvarov, 1927a:120, Figure 119.

179. Genus *Celes* Sauss.

Saussure, 1884:131 Jakobson, 1905:259 Tarbinskii, 1948:124.

Type of genus: *Celes variabilis* Pall.

Thickset, nearly bare. Vertex flat, anteriorly with lateral carinae and a transverse carina separating the vertex from the frontal ridge, foveolae distinct, elongate triangular, anteriorly reaching the end of the vertex, frontal ridge rather wide, nearly reaching the lower limits of the frons. Pronotum (Figures 1267, 1268) rather short without a constriction, dorsally slightly roof-shaped, especially in the prozona, median carina distinct, sharp, slightly raised, but not high, in the middle sharply but not deeply interrupted by a transverse groove, in profile straight, anterior margin straight, posterior obtuse-angled, metazona with lateral carinae. Tegmina only reaching the hind genua or hardly extending beyond them, entirely dull, opaque, spurious median vein in the apical half of the median field closer to M than to CuA. Wings without a dark band, but along the anterior margin and on the apex, darkened. Hind femora rather stout, their dorsal carinae entire without a ledge and without teeth, empodium between the claws small, but well marked. Tympanal lobe low, strongly transverse, weakly separated, not completely covering the opening of the tympanal organ. Subgenital plate in the ♂ short, bluntly conical, cerci curved.

Two species are known, which have been subdivided into subspecies, and are distributed predominantly in the steppes.

- 1 (2). Metazona of pronotum on the sides with several carina-like ridges (Figure 1267). Frontal ridge smooth. Thorax and abdomen ventrally shiny black. Hind femora in the ♂ ventrally and on the inside entirely black. Hind tibiae with 12-16 spines on both sides, in the ♂ solid black or partly brown. ♀ Tegmina with dark bands. *1. *C. variabilis* (Pall.) —Changeable 'young mare' grasshopper [izmenchuvaya kobyłka].
a (d). Tegmina and wings completely developed, completely covering the abdomen and in the ♂ extending slightly beyond its tip
b (c). Wings light rose or bluish. Hind tibiae in both sexes solid black or in the ♀ with an incomplete light ring at the base. Frontal ridge in the ♀ slightly depressed above the ocellus, with sharp raised lateral

margins. Length of body ♂ 18-25, ♀ 22-30 mm; tegmina ♂ 14-19, ♀ 19-27 mm. —European part of the U. S. S. R.: all the steppes and forest-steppes regions; Siberia: southern belt east as far as the Ob and Western Sayan mountain range; Kazakhstan; Middle Asia except the lowland part. Characteristic for typical steppes
 *1a. C. variabilis variabilis (Pall.)

Pallas, 1774, Reise Russ. Reiches, 1:467 (Cryllus). Jakobson, 1905:259 (partly) Uvarov, 1927a:116.

- 586 c(b). Wings bright rose. Hind tibia in the ♀ at least in the basal 1/3, yellowish brown. Frontal ridge in the ♀ flat above the ocellus, with indistinct or obliterated lateral margins. Length of body ♂ 20-26, ♀ 25-32 mm; tegmina ♂ 15-18, ♀ 19-22 mm. —Transcaucasia: Azerbaijan, Armenia, Georgia; Iran: Azerbaijan, Asia Minor; Balkan peninsula *1b. C. variabilis carbonarius Uv.

Uvarov, 1917, Izvestiya Kavkanskogo muzeya, XI 282. Tarbinskii, 1940:202.

- d(a). Tegmina abbreviated, in the ♂ they cover only 2/3 of the abdomen; wings considerably shorter than the tegmina, rose near the base. ♀ Unknown. Length of body ♂ 20.2-21.5 mm, tegmina 11.4 mm. —Asia Minor: mts. of western Anatolia up to 2,600 meters above sea level. 1c. C. variabilis curtipennis Rme.

Ramme, 1939, Mitt. Zool. Mus. Berl., 24:133.

- 2 (1). Metazona of pronotum with a carina on the sides (Figure 1268). Frontal ridge with depressed dots, especially in the ♀. Thorax and abdomen ventrally light. Hind femora in the ♂ ventrally and inside light, with 2 black bands. Hind tibiae on the outer margin with 10-23, on the inner with 9-11 spines, dirty yellow with dark rings and with a wide light band if only at the base. Tegmina in the ♀ with small dark spots, not forming bands.*2. C. skalozubovi Adel. —Skalozubov's 'young mare' grasshopper [Kobylka Skalozubova].
 587 a(b). Smaller. Length of body ♂ 19-22, ♀ 28-34 mm; tegmina ♂ 16.0-18.5, ♀ 19-24 mm. —Siberia from the Urals to Transbaikal, northern Kazakhstan; Mongolia, China from Manchuria to Kansu. Adapted to the forest-steppe region and not inhabiting the true steppes
 *2a. C. skalozubovi skalozubovi Adel.

Adelung, 1906, Izhegodnik Tobol'skogo muzeya, 15-10. Bei-Bienko, 1927, Russkoe entomologicheskoe obozrenie, XXI 102. Tarbinskii, 1948:124.

- b(a). Larger. Length of body ♂ 22-25, ♀ 35.0-43.5 mm, tegmina ♂ 18.5-22, ♀ 23-32 mm. —Ussuri Territory; Korea, Japan.
 *2b. C. skalozubovi akitanus (Shir.)

—akitana Shiraki, 1910.40, tab. 2. Figure 13 (Oedipoda) Tarbinskii, 1932, Izvestiya Leningradskogo instituta bor'by s vreditel'nyami khovyatsva, 11:202. —orientalis Ikonnikov, 1913, Über die von P. Schmidt aus Korea mitgebr. Acrid. 15 (C. skalozubovi).

Saussure, 1886 18, Jakobson, 1905 253 Uvarov, 1927a 119

Slender and graceful. Vertex with raised sharp lateral margins, being long and narrow, with a longitudinal groove, foveolae indistinct, small, frons in the ♂ slightly sloping. Pronotum (Figure 1269) with a thin sharp well-elevated but not very high median carina, sharply interrupted by the posterior transverse groove, sometimes the median carina has a slight notch above the anterior transverse groove, posterior angle of pronotum acute, straight, or slightly pointed, but not rounded. Tegmina narrow, long, in the basal half with rather dense irregular venation, in the apical half weakly transparent, with rather regular tetragonal cellules, the median field not wider than the cubital, spurious median vein in the apical part closer to M than to CuA. Wings narrow, colored near the base, around the middle with a narrow incomplete dark band. Hind femur with an entire dorsal margin, tarsi, especially on the hind legs, long, slender, claws slender, empodium between them narrow, very small. Tympanal lobe quite well separated, but small, covering less than 1/3 of the opening of the tympanal organ

One species—M. wagneri Ev. (Figure 1273) with 2 subspecies.

- a(b). Smaller. Tegmina only extending a little beyond the distal end of the hind femora, not reaching the middle of the hind tibiae. Anterior margin of tegmina with 2 dark spots and a light triangular spot between them. Wings near the base light yellow or sometimes in the ♀ rose (ab. Varentzovi Zub.). Hind femora dorsally with 2 dark spots, light inside, with 2 distinct black bands in the middle part. Length of body ♂ 13-15, ♀ 21-22 mm, tegmina ♂ 10-14, ♀ 17-23 mm. —Southern Ukraine shores of the Azov and Black Seas to the Dnieper in the West, eastern Ciscaucasus, the Lower Volga Region and adjacent part of the Don, deserts of Kazakhstan (east to Zaysan and Alakul depressions and the valley of the Ili near the boundary with China), northeastern Transcaucasia, China Dzungaria. In Middle Asia and in eastern Transcaucasus it is found as a transitional form to the following subspecies. Stays in bare, especially swollen, salt marshes [or on unmixed, soft and swollen, saltworts]. *1a. M. wagneri wagneri (Kitt.) —Wagner's 'young mare' grasshopper [Kobyłka Wagnera].

Kittary, 1849, Byulleten' Moskovskogo obshchestva ispytatelei prirody, XXII:33 (separate publication)
(Oedipoda) Jakobson, 1905 253 Uvarov, 1927a 119

- 588 b(a). Larger. Tegmina longer, reaching the middle of the hind tibiae or even extending beyond it (Figure 1273). Coloring of tegmina, wings, and hind femurs as in the preceding. Length of body ♂ 16-17, ♀ 23-27 mm, tegmina ♂ 13-17, ♀ 21-28 mm — Middle Asia, eastern Transcaucasus, north Afghanistan, Hither Asia from Iran to Palestine. Sometimes slightly injures cotton in Uzbekistan *1b. M. wagneri rogenhoferi (Sauss)

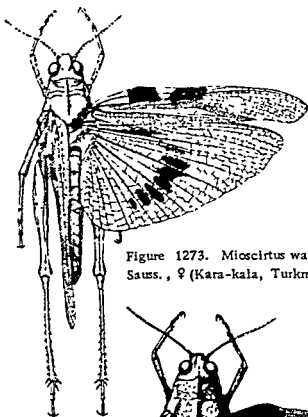


Figure 1273. *Mioscirtus wagneri rogenhoferi*
Sauss., ♀ (Kara-kala, Turkmenia) (Original).

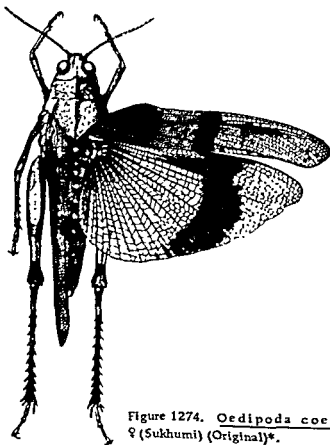


Figure 1274. *Oedipoda coerulescens* L.,
♀ (Sukhumi) (Original)*.

* [For description, see p. 237.]

181. Genus Pternoscirta Sauss.

Saussure, 1884:127, Saussure, 1888:18, Jakobson, 1905:252, Kirby, 1914:134

Type of genus: Pternoscirta cinctifemur (Walk.), Ceylon and southern India.

Rather well-proportioned, ventral part of body, and legs, especially the lower margins of the femora, with long dense hairs. Vertex short, wide, flat, with sharp carina-like margins; foveolae irregularly or roundly triangular, not reaching the anterior margin of the fastigium. Pronotum slightly roughened, with small sparse tubercles, medially distinctly constricted, median carina sharp, distinct, moderately raised, rather sharply intersected before the middle by a transverse groove, posterior angle well marked, right or hardly acute. Tegmina in the basal half leathery, in the apical half transparent and with oblique transverse veins situated plumosely on the main longitudinal veins and making rhombic cellules, spurious median vein in the apical part closer to M than to CuA. Wings colored near the base, darkened on the apex and along the anterior margin, the dark band absent. Hind femora wide, with finely dentate dorsal margin. Hind tibiae, at least in the middle part, bright blue or red, in the basal half with longer and denser hairs than in the apical half, inner pair of spurs rather long, wide, with hairs, empodium between the claws well developed, nearly equal to half the length of the claws. Tympanal lobe weakly separated, opening of tympanal organ widely uncovered.

- 589 A small number of species distributed in southeastern Asia. One species goes north to Kashmir, others have been reported in southern China. The reported finding of P. bimaculata Thunb. in North China (Wu, 1935) is erroneous, this species has not been completely studied and was described by Thunberg (1815) without data on place of occurrence.

Only one species, which reaches Kashmir, is described below.

- 1(1). Wings yellowish near the base. Hind femora black inside, with a wide light band in the middle and in the pre-genicular part. Metazona of pronotum with weak longitudinal rugulae on the sides. Basal part of hind tibiae dark, divided by a light ring, apical part bright blue. Length of body ♂ 19-26, ♀ 25-33 mm, tegmina ♂ 20-27, ♀ 25-32 mm. —The Himalayas, including Kashmir and Sikkim, Malacca, southern China. 1. P. calliginosa (Haan).

Haan, 1842, Verh. Nat. Gesch. Nederl. Overz. Benitt. 161, tab. XXI, Figure 11 (Acridium)

Saussure, 1884:128, Jakobson, 1905:252 Kirby, 1914:135

182. Genus Oedipoda Latr.

Latreille, 1829, Fam. Règne Anim. (new publication), VI:188 Saussure, 1884:146 Jakobson 1905:260 Uvarov, 1927a:120

Type of genus Oedipoda miniata Pall.

Thickset, bare, roughened. Frontal ridge wide, slightly widened between the bases of the antennae and from here to the dorsal end flat; vertex wide, foveolae irregularly rounded or slightly elongate. Pronotum (Figure 1228) greatly roughened, with granules or longitudinal raised rugulae, more rarely slightly roughened (*O. germanica* Latz.) median carina sharp, distinct, distinctly raised, but not high, sharply intersected by the posterior transverse groove; metazona 1.5-2 times longer than the prozona, often with lateral carinae; posterior margin strongly projecting at an angle, the apex of which is not rounded, and the lateral sides straight. Tegmina rather wide, not transparent, with dense venation, only the apical 1/4 or 1/3, or sometimes nearly half (in *O. fedtshenkoi* Sauss., and related species) with sparser venation, membranous. Wings with a dark band which sends off a branch toward the base (Figures 1270, 1271), or the band may be weak or absent; base of wing brightly colored. Dorsal carina of hind femora (Figure 1226) rather high, plate-like, behind the middle notched by a distinct ledge (examined not only from the side but somewhat from above!). Tympanal lobe low, weakly separated, oblique. Valves of ovipositor short, stout, but at the tip with thin re-curved hooks, the bases of the ventral pair of valves having a strong outer process.

More than 10 species, distributed from the Mediterranean countries to Middle Asia and Kashmir; one species reaches the limits of the steppes and even the forest region. 9 species are examined below, of which 6 are found in the U. S. S. R.

- 1 (16). Hind femora not very wide, distinctly narrower than the tegmina (Figure 1226). Vertex slightly depressed, with thin raised carinae on the sides. Height of the eyes, when the head is examined from in front, 1.5-2 times more than the interocular space on the vertex.
- 2 (9). Nearly all the apical half of the tegmina transparent, shining, with sparser venation and tetragonal cells. Inner half of ventral aspect of hind femora light or somewhat dirty, sometimes only bluish, but not black or black-brown. The dark band of the wings often narrow, not very distinct, translucent, or sometimes completely absent. Notch of dorsal carina of hind femora weak, in the form of a gradual "step-down".
- 3 (4). Wings without the dark band, darkened only along the basal half of the anterior margin, brick-red near the base. Pronotum without lateral carinae in the metazona and with slight, sometimes nearly obsolete, lateral carinae in the anterior part of the prozona; the median carina shallowly interrupted by the transverse groove. Tegmina long, reaching the middle of the hind tibiae. Length of body ♂ 16.5-18.0, ♀ 24-27 mm; tegmina ♂ 19, ♀ 25-27 mm. —Kazakhstan: Kzyl-orda..... *1. *Oe. juxartensis* Uv.

Uvarov, 1912, *Russkoe entomologicheskoe obozrenie*, XII:209, Uvarov, 1927a:123.

- 4 (3). Wings although with a weak dark band, not brick-red near the base. Metazona of pronotum often with lateral carinae (Figure 1228), prozona always with distinct oblique or tubercle-like carinae behind the anterior margin.
- 5 (8). The dark band of the wing narrow, the apex of its first 3 lobes clear as glass. Lateral carinae in the metazona of the pronotum blunter, effaced behind.

- 6 (7). Wings rosy at the base, the dark band joined by all its base to the anterior arm, and fully reaching the posterior margin of the wing behind. Lateral carinae in the anterior part of the prozona of the pronotum not strongly raised and not tubercle-like. Posterior part of prozona in front of the transverse groove with 2 depressed oval pits on the sides of the median carina. Length of body ♂ 18, ♀ 23 mm, tegmina ♂ 19, ♀ 21.5 mm. — Kashmir, altitude from 1,800-4,500 meters above sea-level.
 2. Oe. himalayana Uv.

Uvarov, 1925, *Mis Babault Prov Centr. l'Inde et l'Himal.*, Orthopt., Acrididae 22, Figures 5-9; Uvarov, 1927a 122.

- 7 (6). Wings near the base pale violet, bluish, or crimson, the dark band, although slightly severed from the anterior dark branch is often very weak, posteriorly never extending beyond the middle of the outer margin of the wing. Lateral carinae behind the anterior margin of the prozona of the pronotum, sharply raised, in the form of tubercles. Posterior part of prozona without 2 pits in front of the transverse groove or with weak pits.
 *3. Oe. fedtschenkoi Sauss.

- a (b). Smaller. Tegmina shorter, not reaching or hardly reaching the middle of the hind tibiae. Wings either with a faint bluish tinge at the very base and farther on pale violet or light crimson, or entirely bluish as far as the band. Inner aspect of hind femora usually with 2 light bands. Length of body ♂ 15-19, ♀ 21-25 mm, tegmina ♂ 15-21, ♀ 19-24 mm. — North slopes of the Hissar range, Zeravshan and Turkestan (!) mts., lowlands of Middle Asia from Samarkand and the lower course of the Amu Darya (Turkukul) to the valley of the Vakhsh in Tadzhikistan (Dzhilukul), western Tien Shan (Chimgan, Karzhan-tau, differing from typical individuals by the presence of one light band on the inner aspect of the hind femora, possibly a separate subspecies), Afghanistan, western Pakistan. *3a. Oe. fedtschenkoi fedtschenkoi Sauss.

—fedtschenkoi Saussure, 1884 150 Jakobson, 1905 261 Uvarov, 1927a 123, Figure 135

- b (a). Larger. Tegmina reaching the middle of the hind tibiae or still longer. Wings in the basal part monochromatically bright crimson. Hind femora on the inside only with one light band. Length of body of ♂ 17-21, ♀ 24-27 mm, tegmina ♂ 19-23, ♀ 24-31 mm. — Southern slopes of the Hissar mts., Darvaz and Pamir.
 *3b. Oe. fedtschenkoi pamirica Rme.

Ramme, 1934, *Deutsch. Ent. Zeitschr.*, 1933 175

- 8 (5). Apex of first 3 lobes of the wing in the ♂ darkened (Figure 1270), in the ♀ darkened only on the outer margin of the second and third lobes, the dark band rather strongly widened instead of partial or complete fusion with the shadowing on the ends of the lobes, caudally reaching only as far as the middle of the outer margin

of the wing. Lateral carinae of the pronotum in the metazona very distinctly raised and sharp to the posterior margin of the metazona. Base of wing light crimson. Length of body ♂ 16.5-17.2, ♀ 22 mm; tegmina ♂ 15-16, ♀ 20.8 mm. —Mts. of Central Afghanistan, 3,500 meters altitude, 4. Oe. infumata B.-Blenko.

Bel-Bienko, 1949, Doklady AN SSSR (novaya seriya), LXVIII, 1:174.

- 9 (2). Only the apical 1/3 or 1/4 of the tegmina transparent, shiny, with sparser venation and tetragonal cellules. Inner part of the ventral aspect of the hind femora black, only sometimes black-brown with bluish tinge. Band of wings (Figures 1271, 1274) very distinct, intensely dark, not diaphanous, often wide.
- 10 (11). Pronotum slightly roughened, without lateral carinae in the metazona. Notch of hind femora weak, in the form of a gradual "step-down". The black band of the wings very long, extending along the greater part of the outer wing margin, very gradually narrowed and reaching its inner margin (Figure 1271); basal part of wing in the subspecies examined below dull red. *5. Oe. germanica (Latr.)
- a (b). The dark band of the wings very wide, 8-9 mm wide, all the apical part of the wing just as dark. Dimensions as in the following subspecies. —Tyrol, northern Alps, Swiss Jura, Pyrenees 5a. Oe. germanica kraussi Rme.

Ramme, 1913, Berl. Ent. Zeitschr., LVIII:19.

- b (a). Wings with a narrower dark band and a light apical part.
- c (d). Width of band at its anterior margin not more than or a little more than the width of the transparent apical part of the wing (Figure 1271). Length of body ♂ 17-23, ♀ 23-28 mm; tegmina ♂ 16 to 22, ♀ 20-25 mm. —The Crimea, southern part of central Europe north to Paris and Thuringia and south to the southern Tyrol, Montenegro (!) and Roumania, Report for the Crimea demands confirmation. *5b. Oe. germanica germanica (Latr.)

Latrille, 1804, Gen. Coen. Ins., XII:151 (*germanica*), Uvarov, 1923:77. —*minlata* Jakobsen, 1905:261, Plate V (not Pallat). —subsp. intermedia Ramme, 1913, Berl. Ent. Zeitschr., LVIII:18 (Oe. germanica).

- 592 d (c). The dark band of the wings narrow; its width less than 1/3-1/2 of the transparent apical part of the wing. Dimensions as in the preceding. —Balkan peninsula; Asia Minor (Brusa), western Transcaucasia (the river Chorokh) in the limits of Turkey. 5c. Oe. germanica meridionalis Rme.

Ramme, 1913, Berl. Ent. Zeitschr., LVIII:18.

- 11 (10). Pronotum distinctly, often greatly, roughened, with lateral carinae in the metazona; but if the carinae are very weak or obsolescent,

then the wings are golden yellow. Notch of hind femora more distinct, in the form of a ledge. The dark band of the wings shorter, not reaching the inner margin of the wing and touching not more than half of its outer margin.

- 12 (15). Basal part of wings yellow or bluish.
 13 (14). Median carina of pronotum narrower, not very sharp, prozona roof-shaped; lateral carinae in the metazona not very distinct, sometimes obsolescent. Basal part of wings golden yellow, the dark band with a long radial arm along the anterior margin of the wing. Empodium between the claws in the ♂ shorter, 1/3 the length of the claws. Length of body ♂ 18-20, ♀ 22-26 mm, tegmina ♂ 19-20, ♀ 22-24 mm. —Palestine, Asia Minor. 6. Oe. aurea Uv.

Uvarov, 1923, Ent. Monthly Mag., (3), XI 32, Uvarov, 1934, Eos, X.95. —var flava Saussure, 1884
 149 (Oe. miniata) Jakobsen, 1905 261 (Oe. miniata)

- 14 (13). Median carina of pronotum higher, very sharp, in the prozona slightly plate-like, lateral carinae in the metazona distinct, sharp. Basal part of wings blue, sometimes with a greenish, or greenish yellow tinge*, the dark band [of the wings] with a short radial arm (Figure 1274). Empodium between the claws rather large, triangular, in the ♂ half the length of the claw. Length of body ♂ 15-21, ♀ 22-28 mm, tegmina ♂ 16-22, ♀ 22-26 mm. —European part of the U. S. S. R. north to Grodno, Mogilev, Kaluga, Gorky, middle course of the Vyatka south from Molotovsk, Sarapul, Trans-Ural Region to 55° north lat., the Altai steppes, Kazakhstan, mts. of Middle Asia to Kopet Dagh, Transcaucasia, western Europe to southern Sweden, Asia Minor, northern and western Iran, Syria, West China Dzungaria. Sometimes a pest of cultivated plants (Figures 1226, 1228).
 *7. Oe. coerulescens (L.) — Blue-winged 'young mare' grasshopper [Golubokrylaya kobyłka].

Linnaeus, 1758, Syst. Nat., ed. X, I 432 (Gryllus Locusta) Jakobsen, 1905 262, Plate VI, Uvarov, 1927a 152 Tarbinskii, 1940:31, 205, Figure 165A

- 15 (12). Basal part of wings bright rose in color. The dark band rather narrow, only touching the middle of the posterior wing margin, the radial arm long. Empodium between the claws very small, oval, in the ♂ no longer than 1/3 the length of the claw. Length of body ♂ 16-21, ♀ 21-27 mm, tegmina ♂ 18-23, ♀ 23-29 mm.
 *8. Oe. miniata (Pall.) — Red-winged 'young mare' grasshopper [Krasnokrylaya kobyłka].
 593 a (b). Hind tibiae inside yellowish or dirty sky-blue, spines at its base not black, although they may be dark here (dirty blue). —South-eastern European part of the U. S. S. R. (west to Sal'sk, Tsymblyansk, and Stalingrad), the Caspian shores of the Caucasus, southern Kazakhstan and its southern steppe part from the Ural

* In Oe. coerulescens sulfureus Sauss. from northwestern Africa.

river to Irtysh, southeastern part of West Siberia, lowland-parts of Middle Asia, Transcaucasia; Asia Minor, Iran, Iraq, Arabia, North Africa, southern Europe.*8a. Oe. miniata miniata (Pall.)

Pallas, 1771, Reise Russ. Reiches, 1:467 (Cryllus); Uvarov, 1927:122, Figure 134 (partim). Tarbinski, 1940:31, 204. —gratiosa Serville, 1838, Hist. Nat. Ins. Orthopt., 724. —salina Jakobson, 1905:261 (nec Pallas!).

- b (a). Hind tibiae inside darker, dirty dark blue or nearly black; at least the spines of the inner row entirely black (i. e., as far as the base). —Mts. and foothills of southern Kazakhstan and Middle Asia (type from Parkhar in Tadzhikistan); Afghanistan, western Pakistan (?) and northwestern India (?). *8b. Oe. miniata atripes B.-Bienko subsp. n.

—miniata Uvarov, 1927a:122 (partim).

- 16 (1). Hind femora very wide, not narrower than the tegmina. Spines of the hind tibiae dark as far as the base. Vertex convex, wide. Height of the eyes, when examining the head from in front, hardly more than the width of the interocular space on the vertex. Very thickset, strongly roughened. Base of wings pale blue or bluish green. Length of body ♂ 22-27, ♀ 29-33 mm; tegmina ♂ 22-24, ♀ 23-28 mm. —Eastern Ciscaucasus, Caspian shores of the Caucasus, Transcaucasia west to Sukhumi; Asia Minor, northern Iran, Syria. The report for Teberda (North Caucasus) requires confirmation *9. Oe. schochi Sauss.

Saussure, 1884:153, Jakobson, 1905:262, Tarbinski, 1940:31, 205, Figure 165, b. —var. caucasica Saussure, 1884:153; Jakobson, 1905:262 (Oe. schochi).

183. Genus Trilophidia Stål.

Stål, 1873, Reconn. Orth., 1:117, 131; Jakobson, 1905:263.

Type of genus: Trilophidia cristella Stål, from southeastern Asia.

Body not large, rather well-proportioned, with hairs. Antennae short, in the apical part slightly or distinctly widened. Frons in the ♂ slightly sloping, frontal ridge with a groove, its margins sharp; vertex concave, anteriorly not delimited from the frontal ridge, or with a median carina; foveolae irregularly triangular or oval, sometimes indistinct; occiput in the anterior part with 2 tubercles. Pronotum behind widened, especially in the region of the lateral lobes; median carina distinct, in the prozona more elevated and in the middle strongly intersected by the anterior transverse groove as a result of which it seems to be bidentate in profile (Figure 1229), the posterior tooth turned caudad; metazona with lateral carinae. Tegmina narrow, in the apical half with sparse transverse veins, the median field considerably narrower than the cubital; the spurious median vein in the apex coming closer to M than to CuA. Wings without band, slightly colored or colorless at the base, faintly smoky in color along the outer

margin. Legs with hairs, hind femurs rather wide, inside and ventrally black with 2 or on the inside only with one light band, hind tibiae with dark and light rings. Tympanal lobe small, weakly separated.

About 20 species of this genus, which are very similar, have not been sufficiently studied, and are very hard to differentiate, are distributed in Indo-malayan and African regions. Two species—*T. annulata* Thunb. and *T. cristella* Stål (described from the island of Java)—have been cited by some authors as from China and Japan. However, the latter, if it has not been erroneously reported from there, is not present in the northern part of Japan and China and therefore is not examined below. The first species is no doubt a collective species and will consequently probably be divided into several independent species, it was reported from Japan as an individual variation (var. *japonica* Sauss.), but is considered by us as an independent species. Only one of these species is cited by us below, being found at present in the U. S. S. R., it has a wide distribution in North China and Japan but possibly this will hereafter require separation of a special subspecies from it which is peculiar only to the continental part of the areal and differs from the Japanese form in having smaller dimensions of the body.

1(1). Antennas in the ♂ hardly longer, in the ♀ hardly shorter than the head and pronotum, hardly distinctly widened on the apex, the length of the median segments 1.5-2 times more than the width. Vertex with distinct, anteriorly approaching, lateral carinae and a longitudinal groove between them, which extends into the groove of the frontal ridge. Tegmina extending beyond the middle of the hind tibiae, nearly monochromatic (in var. *mongolica* Sauss. from the mountains north of Peking with bands), wings nearly colorless near the base. Length of body ♂ 18.0-19.5, ♀ 21-28 mm, tegmina ♂ 18.5-21.0, ♀ 22-26 mm. -Ussuri Region Posnet (!), North China including Manchuria (!), Japan (Figure 1229). *1. *Tr. japonica* Sauss.

Sausture, 1888 54, Jakobson, 1905:263 Shiraiki, 1910 36

184. Genus *Acrotylus* Fieb.

Fieber, 1853 Lotos, III 125, Saussure, 1884 186 Jakobson, 1905 209 Tarbinskii, 1940-206

Type of genus *Acrotylus insubricus* (Scop.).

Body with hairs. Frons perpendicular or slightly sloping, frontal ridge wide, with a groove, strongly narrowed upward and here very narrow on the boundary with the vertex (Figure 1230), vertex with raised lateral margins, depressed, anteriorly narrower, foveolae triangular, sometimes indistinct. Pronotum very short, wide, constricted in front of the middle and apparently saddle-shaped, prozona uneven, metazona flat, a little or not more than 1.5 times longer than the prozona, median carina interrupted by 2 transverse grooves, posterior margin of pronotum widely rounded, without a separate posterior angle. Lateral lobes of pronotum with a very blunt, rounded, antero-ventral angle. Tegmina narrow, long, in the apical half shining and transparent, the spurious median vein diagonally situated, that is, near the base it approaches CuA but toward the apex it gradually

approaches M. Wings colored at the base, with or without a dark band farther on. All legs with hairs; front and middle femora and the tibiae slender, sometimes very long; inner pair of spurs of the hind tibiae longer than half the first segment of the hind tarsus. Tympanal lobe low, weakly separated.

A large number of species in Africa. In the U. S. S. R. and in southern Europe 3 species are known, one species is also known from Hindustan where it has spread to Kashmir; These 4 species are examined below, some of them subdivided into subspecies.

- 1 (6). Front and middle legs not very long; third segment of their tarsi, when examined from the venter, considerably shorter than the length of the first and second segments combined. Claws on all tarsi normal, situated at an angle to the longitudinal axis of the tarsus and not longer than twice the thickness of the third segment. Inner pair of spurs of the hind tibiae shorter than the first segment of the hind tarsi. Pronotum laterally without a very small whitish convex spot near the transverse groove.
- 2 (5). Wings rosy-red near the base.
- 3 (4). Empodium between the tarsal claws larger, readily visible, in the ♂ nearly equal to half the length of the claws. The dark band of the wings wide, nearly touching the posterior and inner margins of the wing; apex of the first 3 lobes of the wing darkened along the margin but without separate speckles. Antennae slender, 1.5 times longer than the head with the pronotum, the median segments 2-3 times longer than their own width. Body well-proportioned, tegmina extending beyond the middle of the hind tibiae. Length of body ♂ 14-17, ♀ 19-25 mm; tegmina ♂ 17-19, ♀ 19-25 mm. —Black Sea coast of the Caucasus; western Georgia, including Abkhazia and Adzharia (the report for Azerbaijan is incorrect); southern Europe, Asia Minor, Syria, Palestine, Africa *1. A. patruelis (H.-Schäf.)

Hewich-Schaffer, 1833, Fauna Ins. Germ., fasc. CLVII, tab. 18 (Oedipoda), Jakobson, 1905:270, Tarbinski, 1940:32, 206.

- 596
- 4 (3). Empodium between the claws very small, nearly tubercle-like, considerably shorter than half the length of the claws. The dark band of the wings, if wide, not reaching by far their posterior margin; or it is narrow, short or entirely absent, and the apex of the wing has 1-3 separate dark speckles or is without them. Antennae stout and short, in the ♀ not longer, in the ♂ a little longer than the head and pronotum; median segments either quadrate or the largest is 1.5-2 times longer than wide. —In places with very sparse vegetation; overwinters as an adult, sometimes as a larva. (Figure 1230). *2. A. insubricus (Scop.) —Winter 'young mare' grasshopper [Zimnyaya kobyłka].
 - a(b). Body more thickset with relatively shorter tegmina not reaching the middle of the hind tibiae. The dark band of the wings wide, anteriorly it reaches the anal veins of the wing (Figure 1275). Length of body ♂ 14-18, ♀ 19-25 mm; tegmina ♂ 14-18, ♀ 17-21 mm. —Eastern

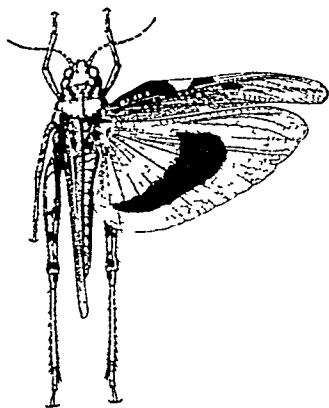


Figure 1275 Acrotylus insubricus
Scop., ♀ (Georgia) (Original).

Ciscaucasus, southwestern Ukraine (Izmail Region!), Black Sea coast of the Caucasus, Transcaucasia; Roumania, southern Europe, Asia Minor, northern and western Iran. (Figure 1275) *2a. A. insubricus insubricus (Scop.)

Scopoli, 1786, Del. Faun. Flor. Insubr., 1:64, tab. 24, Figure e (Gryllus); Jakobson, 1905:269; Tarbinskii, 1940 32, 206, —versicolor Burr, 1898, Trans. Ent. Soc. Lond. 50, Jakobson, 1905:260.

- b(a). Body better-proportioned; tegmina longer, reaching the middle of the hind tibiae or extending beyond it. The dark band of the wings narrow, anteriorly not reaching the anal veins (Figure 1272) or the wings are entirely without bands. Length of body ♂ 15-19, ♀ 19 to 25 mm, tegmina ♂ 17-20, ♀ 19-24 mm.
- c(d). Wings with a narrow dark band (Figure 1272).—Odessa, Lower Volga Region, southern Kazakhstan east to the Alakul depression, all Middle Asia except the mts.; a report for southeastern part of West Siberia (Zmeinogorsk) possibly belongs to this same subsp.; in southern Middle Asia a form is found which is a transition to the following subspecies (with a nearly obsolete light band on the hind wings), and in the valley of the Araks, in Transcaucasia there is a form transitional to the basic subspecies; Iran, Arabia, North Africa. *2b. A. insubricus inficitus (Walk.)

Walker, 1870, Cat. Derm. Salt. Brit. Mus., IV:742 (Oedipoda); Uvarov, 1933, Proc. Zool. Soc. Lond. 1267.

- d(c). Wings entirely without bands or with a dark spot instead of them. — Eastern and southern Iran, southern Arabia, Somaliland; evidently distributed in the driest deserts. 2c. A. insubricus innotatus Uv.

Uvarov, 1933, Proc. Zool. Soc. Lond. 1267.

- 597 5 (2). Wings yellow near the base, farther on with a wide incomplete dark band, anteriorly entirely or nearly reaching the anal veins; apex of first lobe of the wing with 1-3 small black speckles. Tegmina long, extending beyond the middle of the hind tibiae; in the basal half brownish, with a light spot at the anterior margin. Length of body ♂ 14, ♀ 18-22 mm; tegmina ♂ 16, ♀ 19-21 mm. —Kashmir, India, Pakistan, Ceylon. 3. A. humbertianus Sauss.

Saunders, 1854 189, Kirby, 1914:153, Figure 108.

- 6 (1). Front and especially middle legs very long, slender, length of the middle femora not less than twice more than the width of the tegmina; third tarsal segment equal to the combined length of the first and second segments. Claws on all tarsi long, slender, directed along the longitudinal axis of the body, more than twice as long as the third segment is thick. Inner spurs of hind tibiae very long, nearly or completely equal to the first segment of the hind tarsi. Pronotum with a very small whitish convex spot on each side situated at the very anterior margin of the transverse groove. Wings yellow

or orange at the base, without distinct dark speckles on the apex. Length of body ♂ 14-18, ♀ 19-24 mm; tegmina ♂ 16-19, ♀ 21-24 mm *4. A. longipes (Charp.)

- a(b). Wings without a dark band. Antennae slender, 1.5 times longer than the head with the pronotum. Tegmina in the basal half with a light band along the middle or all of their posterior margin is not darkened. —Southern Crimea, southwestern Ukraine, from Odessa to the Danube, Asia Minor, southern Iran, southern Europe, North Africa. Stays on sandy sea coasts *4a. A. longipes longipes (Charp.)

Charpentier, 1845, Orthopt descr et dep, tab 54(Oedipoda) Jakobson, 1905 270

- b(a). Wings with a short half-moon-shaped dark band. Remaining characters as in the preceding. —Western Pakistan. 4b. A. longipes subfasciatus B. —Bienko

Bei Bienko, 1948, Doklady AN SSSR (novaya seriya), LX, 3 498

185. Genus Bryodema Fieb. —Rattling grasshopper [Treshchotka].

Fieber, 1853, Lotos, III 129, Jakobson, 1905 265 Bei Bienko, 1930:77 —Rhodorrhapis Saussure, 1884 179

Type of genus: Bryodema gebleri (F.-W.).

Large, rather thickset. Head with a wide, slightly convex vertex, foveolae irregularly triangular or often obliterated; frontal ridge wide, low, gradually disappearing below the ocellus. Pronotum (Figure 1238) anteriorly narrowed, either with a cylindrical, dorsally convex, prozona and a flat, slightly rugose metazona or covered with scattered tubercles or little ridges, sides of metazona with well marked convex or carina-like shoulders, its posterior margin straight or obtuse-angled, median carina low, thin, often partly obsolescent, sometimes slightly raised like a lobe only in the anterior part of the prozona, intersected by 2-3 transverse sometimes weakly marked grooves. Lateral lobes of meso- and metasternum widely separated, especially in the ♀. Tegmina (Figure 1233) wide, with sparse venation, nearly entirely membranous, in the ♀ often shortened by half (Figures 1280, 1284), median field wide, not narrower than the cubital, spurious median vein not thicker than CuA, well marked or weak, more rarely entirely absent. Wings wide with a straight anterior margin, in the ♂ with every other vein of the fan thickened (Figure 1233), in the ♀ sometimes, similarly to the tegmina, shortened (Figures 1280, 1284), the dark band present, or nearly all the wing is darkened, more rarely darkened only on its anterior margin (Figures 1276-1279). Hind femora rather short, hind tibiae (Figure 1235) with 9-13 straight spines in the inner side, the thickened base of the tibiae smooth, sometimes with sparse dots [or punctures]. Tympanal lobe weakly developed, not covering the opening of the sound organ (Figure 1231).

13 species of this genus are known, of which part have been subdivided into subspecies. For the most part these species are characteristic of

the steppes and cold deserts of Mongolia with the adjacent parts of Siberia and Kazakhstan; some species are peculiar to parts of China contiguous to Mongolia.

A characteristic feature of the genus is the peculiar fluttering flight of the $\sigma\sigma$ accompanied by an odd rattling sound which seems to be the result of alternate flapping and folding of the wings in flight; with the flap of the wings the σ sharply rises in the air and emits a crackle, with the folding of the wings the σ falls obliquely downward. This characteristic and the large dimensions of the body make this grasshopper a very conspicuous and representative member of the corresponding faunas and landscapes.

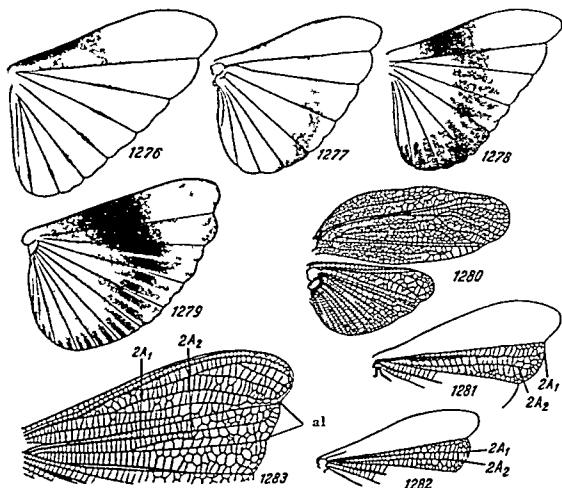
- 1 (6). Hind tibiae yellow (very rarely with a reddish tinge on part of the dorsal and inner aspects). Sex dimorphism indistinct; the $\sigma\sigma$, similarly to the $\sigma\sigma$, have an elongated body and completely developed tegmina and wings, reaching the middle of the hind tibiae.
- 2 (5). Median carina of pronotum on its whole extent low. Anal (i.e., second) lobe of the wing wide, 1.5-2 times wider than the adjacent field behind it, with 2 completely developed parallel veins; the anterior of these veins (2A₁) in the σ being thickened in the basal half (Figures 1281, 1282).
- 3 (4). Genicular part of the hind femora wider; its ventral lobe sharply widened and ventrally rounded. Hind tibiae monochromatically ochre-yellow, not darkened at the apex. Tegmina without a spurious median vein in the median field. Wings with indistinct dark band or only with dark spots instead of the band (Figure 1276), the thickening of the anterior vein of the anal lobe of the σ wing very strong, with a sinuous posterior margin (Figure 1281) *1. Br. holdereri Krauss
—Yellow-legged rattling grasshopper [Treshchotka zheltonogaya].
- a(b). Larger and more thickset. Length of body σ 31-36, σ 34-40 mm; tegmina σ 32.5-36.0, σ 32.5-38.0 mm.—Transbaikal; all Mongolia, northwestern China including Manchuria. Slightly injures vegetation of pastures and sometimes grain in Transbaikal *1a. Br. holdereri holdereri Krauss.

Krauss, 1901, Zool. Anz., XXIV:236, Jakobson, 1905:264; Bei-Bienko, 1930a:85, Plate XVIII, Figure 1, Plate XIX, Figure 5.

- b(a). Small and scarcely more slender and graceful. Length of body σ 29-30, σ 33-34 mm; tegmina σ and σ 30-31 mm.—Southeastern Altai, Minusinsk depression, Tuva Autonomous Region *1b. Br. holdereri occidentale B.-Bienko.

Bei-Bienko, 1930a:87.

- 599 4 (3). Genicular part of hind femora normal; its ventral lobe slightly widened, almost with a straight ventral margin. Hind tibiae dirty yellow, darkened at the apex. Tegmina with a spurious median vein. Wings with a distinct dark band (Figure 1277); the thickening of the first vein of the anal lobe in the σ slight, with a smooth posterior margin (Figure 1282) *2. Br. tuberculatum (F.)—Wide-winged or tuberculous rattling grasshopper [Treshchotka shirokokrylaya ili bugorchataya].



Figures 1276 1283
(After Bei-Bienko)

1276—Bryodema holdereri Kr, ♂, coloring of wing 1277—Br. tuberculatum (F), ♂, ibidem 1278—Br. semenovi Ikonn, ♂, ibidem 1279—Br. gebleri (F W), ♂, ibidem 1280—Br. gebleri (F W), ♀ tegmen and wing 1281—Br. holdereri Kr, ♂, veining of second lobe of wing 1282—Br. tuberculatum (F), ♂, veining of second lobe of wing 1283—Br. luctuosum (Stoll) ♂ anterior half of wing
al—2nd (anal) lobe

- a (d). Brown or yellowish brown but without a considerable portion of coal-black coloring. Wings with a distinctly separated dark band and undarkened outer part; only the first lobe on the apex sometimes with dark speckles.
- b (c). Smaller and more slender and graceful. Length of body ♂ 26 to 29, ♀ 29-39 mm; tegmina ♂ 25-29, ♀ 25-30 mm. —European part of the U. S. S. R., north to Luga and south to northern Ukraine, the Lower Volga Region and the southern Ural Region; steppes of Kazakhstan, Altai; northern Germany, Denmark, Scandinavia, Finland. (Figures 1231, 1277, 1282)
 *2a. Br. tuberculatum tuberculatum (F.)

Fabricius, 1775, Synt. Ent. :290 (Cryllus), Jakobson, 1905 265, Plate VI; Bel-Bienko, 1930a:88, Plate XVIII, Figure 2, Plate XX, Figure 6.

- c (b). Larger and more thickset. Length of body ♂ 29-39, ♀ 34-48 mm; tegmina ♂ 29-38, ♀ 29-36 mm. —European part of the U. S. S. R.: the Ural Region; Siberia from Trans-Ural Region to Maritime Territory and the Verkhne-Kolymsk uplands (settlement of Strel'-ka!), Yakutia to 64° north lat., forest steppe of Kazakhstan, Altai; Mongolia, China from Manchuria and Peking to the province of Kansu and Szechwan and from Tibet to the Himalayas
 *2b. Br. tuberculatum dilutum (Stoll).

Stoll, 1813, Repres. Spectres etc. :21, tab. IXb, Figure 31 (Cryllus Locusta), Bel-Bienko, 1930a:91. —
 subsp. sibirica Ikonnikov, 1913, Über die von P. Schmidt aus Korea mitgebr. Acrid. :17 (Br. tubercu-
latum).

- d (a). Very dark with a considerable admixture of coal-black coloring. Wings with all the outer part darkened as a result of which the dark band is almost not distinguished. Length of body ♂ 29, ♀ 35 mm; tegmina ♂ 29, ♀ 30 mm. —Western Europe: the Bavarian Alps and, probably, the Tyrol
 2c. Br. tuberculatum bavaricum Zach.

Zacher, 1919, Ent. Mitt., VIII:96, 99, Figure 5, Bel-Bienko, 1930a:93.

- 5 (2). Median carina of pronotum lobately raised in the anterior part of the prozona. Anal lobe of wing narrow, of the same width as the posteriorly adjacent field, only with one longitudinal vein which is not thickened toward the base (2A₁); posterior longitudinal vein (2A₂) shortened, curved in an S-shape, not parallel to the anterior one (as in Figure 1283). Wings solidly dark, except for the rosy base and light preapical band. Length of body ♂ 31.5-32.0, ♀ 38-39 mm; tegmina ♂ 37-40, ♀ 36 mm. —Northwestern China: Kansu. . .
 3. Br. uvarovi B.-Bienko.

Bel-Bienko, 1930a:112.

- 6 (1). Hind tibiae red or blue. Sex dimorphism distinct; the ♀♀ very stout, with abbreviated tegmina, barely extending beyond the posterior genua or even shorter (Figure 1284).

- 7 (22). Base of wings rose. Anal lobe of wing in the ♂ wide, 1.5-2 times wider than the posteriorly adjacent field with 2 completely developed parallel veins (Figure 1233).
- 8 (15). Wings in the ♂ with a sharp dark band (Figure 1278), first longitudinal vein (2A₁) of anal lobe of the wing thickened in the basal half (as in Figure 1282). Tegmina in the ♀ without a spurious median vein or it is indistinct (Figure 1284).
- 9 (12). Hind tibiae red, hind femora on the inside entirely red or only red in the pre-genicular part.
- 10 (11). Hind femora inside and ventrally black with a red band in the pre-genicular part, hind tibiae blood red. Tegmina in the ♀ extending a little beyond the hind genua, nearly 3 times longer than the pronotum, ♀ wings hardly shorter and twice wider than the tegmina. Length of body ♂ 26, ♀ 32 mm, tegmina ♂ 28, ♀ 23 mm. —China: Lake Kukunor and eastern Tibet. 4. Br. diamesum B. —Bienko.

Bei-Bienko, 1930a:94.

- 11 (10). Hind femora red ventrally and inside, hind tibiae orange red. tegmina in the ♀ not extending beyond the hind genua, twice longer than the pronotum, ♀ wings considerably shorter and not wider than the tegmina. *5. Br. zaisanicum B. —Bienko.
- a (b). Larger. Pronotum longer, ♂ 8.0-8.5, ♀ 8.5-10.0 mm, its metazona in the ♂ nearly twice, in the ♀ more than 1.5 times as long as the prozona. Frontal ridge flat or with a weak groove, its lateral margins blunted and not raised. Length of body ♂ 29 to 31, ♀ 30-36 mm, tegmina ♂ 26-29, ♀ 15-18 mm. —Kazakhstan eastern Zaisan depression and Saur Mountain Range. *5a. Br. zaisanicum zaisanicum B. —Bienko

Bei-Bienko, 1930a:96

- b (a). Smaller. Pronotum shorter (♂ 6.3-7.3, ♀ 7.8-9.0 mm), its metazona 1.5 times longer than the prozona or in the ♀ still shorter. Frontal ridge with a distinct groove, especially in the ♂, and with sharp raised margins. Length of body ♂ 23-30, ♀ 28-33 mm, tegmina ♂ 26-30, ♀ 14-17 mm. —Northwestern Mongolia and western China Dzungaria (Barlyk mts.). 5b. Br. zaisanicum fallax B. —Bienko.

Bei-Bienko, 1930a:97

- 12 (9). Hind tibiae blue, hind femora blue or nearly black inside.
- 13 (14). Hind femora inside and ventrally with a light pre-genicular band, hind tibiae outwardly with 5-7, inwardly with 7-9 spines. Smaller. Length of body ♂ 21-26, ♀ 26-31 mm, tegmina ♂ 24-28, ♀ 15-17 mm. —Mongolia from the basin of the Kobdo river to Ulan-Bator and the northern outskirts of the Gobi desert. 6. Br. orientale B. —Bienko.

semenovi orientale Bei-Bienko, 1930a:101.

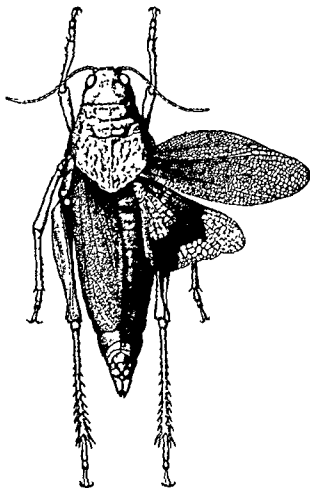


Figure 1284. Bryodemema semenovi Ikonn.,
♀ (Degerez mountain ridge, Terskei Ala Tau).
(Original).

- 14 (13). Hind femora inside and ventrally entirely dark blue without a light pre-genicular band; hind tibiae outwardly in the ♂ with 7-9, in the ♀ with 8-11 spines, inwardly in both sexes with 9-11 spines. Larger. Length of body ♂ 25-27, ♀ 32-36 mm, tegmina ♂ 26.5-31, ♀ 18.5-22 mm. —Southeastern Kazakhstan south slopes of the Ketmen mts., the river Kegen and the eastern outskirts of the Terskei-Ala Tau (Mts. along the river Kokpak!) up to an altitude of 2,800 meters. Stays on rocky southern slopes with sparse juniper growth. *7. Br. semenovi Ikonn.

Ikonnikov, 1911, *Russkoe Entomologicheskoe obozrenie*, XI:350, Bel-Bienko, 1930a 99, Plate XVIII, Figure 3, Plate XX, Figure 1.

- 15 (8). ♂ wings entirely dark except the rose base (Figure 1279), both longitudinal veins of the anal lobe of the wing thin, of the same thickness (Figure 1233). ♀ tegmina with a spurious median vein in the median field (Figure 1280).
- 16 (21). Hind femora ventrally and inside red or blue-black, in the latter case without the red pre-genicular band, hind tibiae red, or if blue, then the body is larger (♂ not less than 28, ♀ not less than 32 mm), and the foveolae are indistinct.
- 17 (20). Hind femora dorsally without velvety-black spots. Median carina of pronotum very thin, here and there half effaced (Figure 1238). Foveolae absent or indistinct. ♀ tegmina reaching the distal ends of the hind femora or extending slightly beyond them.
- 18 (19). Hind femora ventrally and inside, and the hind tibiae red or blue, in the latter case the hind femora have a light pre-genicular band. Pronotum with distinct tubercles and carina-like rugulae in the metazona (Figure 1238). Base of wings rose. (Figures 1233, 1235, 1279, 1280). *8. Br. gebleri (F.-W.)
- a (b). Hind femora ventrally and inside, and the hind tibiae red. Length of body ♂ 25-32, ♀ 32-42 mm, tegmina ♂ 32.0-38.5, ♀ 20-24 mm. —Gubersinsk mts on the southern Urals, Mugodzhary, southern Trans-Ural Region, southern Irtysh Region and Zaisan depression in Kazakhstan, Altai, Tuva Autonomous Region, of Eastern Sayan Mts. and Transbaikai, northeastern Tien Shan within the limits of Kirghizia to Issyk-kul and Inylchek Mountain Range, eastern Tien Shan within the limits of Chinese Dzungaria *8a. Br. gebleri gebleri (F.-W.)

Fischer-Waldheim, 1836, *Byulleten' Moskovskogo obshchestva lyubitel'ei prirody*, IX:346, Plate IV, Figure 1 (Oedipoda) Jakobson, 1905:263; Bel-Bienko, 1930a:106, Plate XVIII, Figures 4, 7, Plate XIX, Figure 1, Plate XX, Figures 2-4, —balcalensis Fischer-Waldheim, 1846:263, tab. XXVI Figures 5-7 (Thrinchus)

- b (a). Hind femora ventrally and inside blue-black, hind tibiae blue. Length of body ♂ 30-36, ♀ 35-45 mm; tegmina ♂ 40-46, ♀ 20-25 mm. —Siberia: southern Altai (Chuya and Kural steppes), and the south slopes of Mt. Tannu-ola; Mongolia (without the western part) south to the Gobi desert, eastern Tien Shan within the limits of Chinese Dzungaria *8b. Br. gebleri mongolicum Zub.

- 603 19 (18). Hind femora ventrally and inside entirely blue-black, without a light pre-genicular band; hind tibiae blue. ♂ pronotum nearly smooth, in the ♀ with weak rugulae. Wings at the base rather rosy-violet. Length of body ♂ 28-30, ♀ 32-33 mm; tegmina ♂ 33-38, ♀ 25-26 mm. —Kazakhstan: Dzungarian Ala Tau, 1,800 meters and more altitude; China: Dzungaria (Barlyk mt.). *9. Br. heptapotamicum B.-Bienko.

Bei-Bienko, 1930a:103; Bei-Bienko, 1948, Vestnik AN Kazakhskoi SSR, 8(41) 40-41.

- 20 (17). Hind femora dorsally with 3 velvety black spots. Median carina of pronotum distinct for its whole length. Foveolae distinct, triangular. ♀ Tegmina not reaching the distal end of the hind femora. Hind femora inside and hind tibiae red. 10. Br. miramae B.-Bienko.
a (b). Larger and more thickset. Pronotum distinctly swollen in the prozona. Length of body ♂ 28-32, ♀ 37 mm; tegmina ♂ 35-37, ♀ 18 mm. —China: eastern part of the Nan Shan mts. in the province of Tsinghai 10a. Br. miramae miramae B.-Bienko.

Bei-Bienko, 1930a:110.

- b (a). Smaller and more slender and graceful. Pronotum in the prozona not swollen. ♀ Unknown. Length of body ♂ 23-24, tegmina 28 to 29.5 mm. —China: from the mts. of Nan Shan in the North to the province of Kam in eastern Tibet 10b. Br. miramae elegantulum B.-Bienko.

Bei-Bienko, 1930a:111.

- 21 (16). Hind femora inside black, with a red pre-genicular band, hind tibiae blue. Body not large, in the ♂ very well-proportioned. Foveolae rather distinct, triangular. Wings in the ♀ with sharply outlined wide dark band. Length of body ♂ 22.5-25.0, ♀ 27 mm; tegmina ♂ 27.0-29.5, ♀ 17 mm. —China: Alashan mt. ridge and Alashan desert. 11. Br. kozlovi B.-Bienko.

Bei-Bienko, 1930a:101.

- 22 (7). Base of wings darkened or colorless, with thickened black veins; anal lobe of ♂ wing narrow, not wider than the posteriorly adjacent field, with the posterior longitudinal vein abbreviated, weakly developed and curved like an S (Figure 1283). Hind femora ventrally and inside black or black-blue, with a light pre-genicular band.
23 (24). ♂ wings with a wide undarkened border on the outer margin; the remaining part of the wing entirely dark or basally colorless. Frontal ridge in the ♀ weakly narrowed under the ocellus, the foveolae weak, indistinct (Figure 1283). *12. Br. luctuosum (Stoll).

- a (b). Hind tibiae black-blue, nearly black. Length of body ♂ 26-32, ♀ 25-38 mm, tegmina ♂ 38-39, ♀ 20 mm. —China southern Tibet to the Himalayas *12a. Br. luctuosum luctuosum (Stoll).

Stoll, 1813, Repres Spectres etc 24, tab Xlb, Figure 37 (Cryllus Locusta), Jakobson, 1905 226, Bei-Bienko, 1930a 113, Plate XIX, Figure 2 —lugens Krauss, 1901, Zool. Anz., XXIV 238 —mongolica I Bolivar, 1901, in Zichy, Dritte Asiat. Forschungsr 233, —argunense Shchelkanovtsev, 1911, Raboty zoologicheskogo kabineta Varnhavskogo universiteta 26, Figure 15

- 604 b (a). Hind tibiae red. Length of body ♂ 27-38, ♀ 35 mm, tegmina ♂ 38-39, ♀ 20 mm —China southern Tibet to the Himalayas. 12b. Br. luctuosum indum Sauss.

Saussure, 1884:180 Jakobson, 1905:267 Bei-Bienko, 1930a 116

- 24 (23). Frontal ridge strongly narrowed under the ocellus, foveolae sharp. Hind tibiae red. The ♂ is unknown. Length of body ♀ 28, tegmina 15 mm. —China (without more exact data). An insufficiently-interpreted species. . . . 13. Br. brunnerianum Sauss.

Saussure, 1884 180, Jakobson, 1905 265 Bei-Bienko, 1930a 117

186. Genus Angaracris B.-Bienko

Bei-Bienko, 1930a 118

Type of genus: Angaracris barabensis Pall.

Like Bryodema Fieb., but the pronotum has a median carina which is distinct for all its length, intersected by only 2 transverse grooves, and with distinct lateral carinae in the metazona, tegmina and wings (Figure 1234) completely developed in both sexes, the median field of the tegmina narrower than the cubital, with a thick strong spurious median vein exceeding CuA, and in the ♂ also M, in thickness, wings without a dark band, with the anterior margin curved in an S shape, the thickened base of the hind tibiae with a regular transverse striation dorsally making a thin corrugation. (Figure 1236).

Similarly to the following it can give out a crackling sound during flight. Only 2 species, which are close together, are known.

- 1 (2). Wings greenish or yellowish near the base with thickened veins of the same color. Body greenish or grayish-brown, with dark spots. Hind tibiae with rather dense hairs, red or yellow. Length of body ♂ 22-31, ♀ 29-35 mm, tegmina ♂ 24-30, ♀ 23.5 to 30.0 mm. —Siberia from southern Transural to Transbaikal, Tuva Region, Altai and northern Kazakhstan Kustanai, the steppe along the Irtysh, Mongolia. Injures vegetation of pastures. (Figures 1234, 1236) *1. A. barabensis (Pall.) —Baraba rattling grasshopper [Treshchotka barabinskaya].

Pallas, 1773, *Reise Russ. Reiches*, II:728 (*Cryllus Locusta*): Jakobson, 1905:266 (*Bryodema*). Bel-Bienko, 1930a:119, Plate XVIII, Figure 6, Plate XIX, Figure 2. —*Hospes* Fischer-Waldheim, 1846:295, tab. XXIV, Figure 1-2 (*Oedipoda*). —*lugubris* Fischer-Waldheim, 1846:298, tab. XXXII, Figures 4-5 (*Oedipoda*). —*thunbergi* Stål, 1860, Kongl. freg. Eug. Res. a Zool., V, Orth.:345 (*Oedipoda*).

- 2(1). Wings rosy near the base; the thickened veins in the basal part red. Color of body, dimensions, hind tibiae as in the preceding. —Siberia from Minusinsk to Transbaikal, Tuva Autonomous Region, Altai; Mongolia, China: Manchuria, Inner Mongolia, Kansu.
 *2. *A. rhodopa* (F. -W.)

Fischer-Waldheim, 1836, *Byulleten' Moskovskogo obshchestva ispytatelei prirody*, IX:348 (*Oedipoda*). Bel-Bienko, 1930a:121. —var. *rosalpennis* Kraus, 1901, *Zool. Anz.*, XXIV:237 (*Bryodema barabense*).

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187. Genus *Uvaroviola* B. -Bienko

Bel-Bienko, 1930a:123.

Like *Bryodema* Fieb. but the wings are light, without a dark band; hind tibiae (Figure 1237) slightly curved with 10-17 strongly curved spines on the outer and 15-18 on the inner side; the thickened base of the hind tibiae dorsally with strong irregular rugulae and deeply impressed punctures. Head with distinct triangular foveolae. Pronotum with distinct median carina; sides of metazona with incomplete lateral carinae. Tegmina and wings in the ♀ abbreviated, not extending beyond the hind genua.

One species is known.

- 1(1). Brownish-gray, with an admixture of green. Tegmina with a distinct spurious vein in the median field. Wings light-greenish-yellowish, with hardly darker brownish-yellow anterior and outer margin. Hind femora dorsally with 2 or 3 velvety black spots. Length of body ♂ 26-30, ♀ 27-36 mm; tegmina ♂ 31.5-37.0, ♀ 15-17 mm. —China: eastern Tibet, Tsinghai (mt. Burkhan-budda and region of Lake Kukuror), province of Kansu. 1. *Uv. multispinosa* B. -Bienko.

Bel-Bienko, 1930a:123, Plate XVIII, Figure 5, Plate XIX, Figure 3.

188. Genus *Compsothrips* Sauss.

Saussure, 1889, *Mitt. Schweiz. Ent. Ges.*, VIII 87; Bel-Bienko, 1932, *Stylops*, 1:82. —*Callirhipis* Saussure, 1888-66 (not Latreille). —*Cosmorhipis* Jakobson, 1905:267.

Type of genus: *Compsothrips davidiana* Sauss.

Externally reminiscent of *Bryodema* Fieb., but the wings with normal principal longitudinal veins. Pronotum smooth, without distinct tubercles and rugulae; median carina very thin, weak, obsolete between the transverse grooves, metazona without lateral carinae. Tegmina wide, nearly completely transparent, completely developed in both sexes, in the ♂ reaching the apices of the hind tibiae; median field wide but not wider than cubital, with slightly arcuately projecting posterior margin; spurious

median vein approaching and parallel to M for its whole extent. Wings rosy at the base with a wide dark band which sends off a branch toward the base. Hind femora well-proportioned, the hind tibiae with 10-17 straight spines on the outer side, 13-17 on the inner (Figure 1239). Tympanal lobe low, weakly developed, hardly covering the base of the tympanal organ. Body ventrally and legs with dense hairs.

Two species are known.

- 1 (2). Larger. Prosternum only slightly roundly convex between the front legs. The black band of the wings very wide, considerably greater than the width of the tegmina so that the wings, except at the very base and the light preapical part, are black, the rosy basal part of the wing is very small, often delimited by the inner margin of the band with black cross-veins. Costal field of σ tegmina with irregular cross veins. Length of body σ 29, φ 36-40 mm, tegmina σ 34, φ 35-40 mm. —Southern Transbaikal, Mongolia, China: Hopeh, Kansu, Ningsia. *1. C. davidiana (Sauss.)

Saussure, 1888:67, Jakobson, 1905 268 (Casmorrhypis), Bel-Bienko, 1932, Stylops, 1:82

- 606 2 (1). Smaller. Pronotum with a weak triangular process. The black band of the wings sharply delimited, not very wide, hardly wider than the tegmina, touching the outer margin of the wing only in its posterior part, the rosy base sharply delimited by the band, large, with rosy transverse veins. Costal field of σ tegmina with regular cross veins. Length of body σ 24.5, φ 33 mm, tegmina σ 28, φ 31.5 mm. —Mongolia northwest to the boundary with the U. S. S. R., China Inner Mongolia (Ningsia and Suiyuan) (Figure 1239). 2. C. bryodemoides B.-Bienko.

Bel-Bienko, 1932, Stylops, 1:82, Figure 1 —davidiana Sjstedt, 1933, Ark. Zool., 25A, 3:28, tab. 11, Figures 1-2 (nec Saussure)

189. Genus Pseudocoles I. Bol.

I Bolivar, 1899, Ann. Soc. Ent. Belg., 43:593; Jakobson, 1905:259; Dirsh, 1940a:375 —Thalpo-
mena Saussure, 1884:184 (partly), Jakobson, 1905:268; Uvarov, 1927a:126; Tarbinskii, 1940 31, 198

Type of genus: Pseudocoles oedipodioides Bol.

Antennae rather short, somewhat longer in the σ , in the φ not longer than the head and pronotum. Head not projecting upward above the line of the pronotum, frons slightly sloping (Figure 1240), frontal ridge with punctures [or dots], with or without a weak groove, vertex not wide, elongated, weakly depressed or nearly flat, with distinct lateral carinae; foveolae irregularly triangular, weakly marked, or more distinct but shallow. Pronotum (Figure 1240) short, laterally compressed, narrowing in front, but without a constriction in the prozona, median carina low, thin, interrupted by 2, more rarely by 3 transverse grooves; prozona cylindrical, convex, metazona without lateral carinae, its posterior angle obtuse, straight, or slightly acute. Tegmina distinctly not reaching the apexes of the hind tibiae, rather wide, with dark speckles or nearly monochromatic, but always without

distinct bands; nearly all the apical half with sparser venation; spurious median veins straight, sometimes irregular, but parallel to M. Wings with weakly convex outer margin, the dark band usually developed, giving off a radial arm along the anterior margin toward the base of the wing, or the dark band is weak, incomplete, or absent altogether. Hind femora short, wide, but in the ♂ not wider, or narrower, in the ♀ always narrower than the tegmina, their length 3.1-3.5 times more than their width. Tympanal lobe weakly separated, low, covering considerably less than 1/3 of the opening of the sound organ. Last abdominal sternite in the ♀ blue. Ventral valves of the ovipositor with a strong process at the base and with rather thin curved hooks at the tip (Figure 1242). ♀ cerci near the base stout, very finely pointed on the apex, spine-like (Figure 1242).

The species of this genus were formerly included by authors in the genus Thalpomena Sauss., the type of which is T. algeriana Luc. from Algiers. However this species with its North African related species differs sharply from species peculiar to Hither Asia by the very wide hind femora, by the perfectly perpendicular front, by the well developed platelike tympanal lobe, by the sloping spurious median vein of the tegmina and by the form of the hind wings, i.e., by characters of generic significance. As a result of this the Asiatic species of the former genus Thalpomena 507 Sauss. has to be separated into a genus of their own, Pseudoceles Bol., which was formerly considered a synonym of Thalpomena Sauss. Dirsh (1949a) recently came to be of the same opinion.

Species of this genus populate mountainous countries where they are found for the most part in dry low mountains inhabiting stony slopes and screes. Morphologically this genus is close to Oedipoda Latr., some species of which have a completely similar ecology; there is especially great similarity between P. persa Sauss. and Oe. fedshenkoi Sauss., having variable coloring of the wings and producing a number of nearly parallel color aberrations.

The systematics of the genus have not been sufficiently worked out, despite the fact that the paper by Dirsh mentioned above was devoted to this problem. But that author did not take the limits of variation of the species into account and attached too much importance to the structure of the head and pronotum in the species descriptions; as a result, most of the species described by him proved to be synonyms and his keys were useless for identification. The work failed because it was based on an erroneous premise on the apparent breaking down of isolated populations of these grasshoppers in favor of speciation. This premise is refuted by the fact that species of the genus in question are able to fly and can consequently fly over space with unsuitable feeding places, besides that, in the mountainous countries where this genus is found, suitable rocky slopes can often be found close to each other.

15 species have been described for this genus but this number has been reduced to 9, except for the synonyms, of them only 7 species are examined below as the other two were described from Syria and Palestine. 5 species have been reported for the limits of the U. S. S. R. of which P. zangezuri Dirsh and P. armeniacus Dirsh have not been found by us in the field. 1(2). Wings yellow in the basal part. The dark band of the wings wide with a basal-directed arm, apex of wing slightly darkened. Hind tibiae dorsally bluish. The ♂ not described. Length of body ♀ 20.5-23.0.

tegmina 19-20 mm. —Southern Asia Minor from Mugla in the west to the eastern part of the Kilis Taurus (Kyulek or Gyulek!)
 1. P. ledereri (Sauss.)

Saussure, 1884 184 (Thalpomena), Jakobson, 1905 268 (partly) (Thalpomena) Dirsh, 1949a 385, Figures 74, 78, 83. —tuscicus Dirsh, 1949a 385, Figures 81, 82, 94.

- 2 (1). Wings not yellow in the basal part.
- 3 (10). Hind tibiae dark bluish or bluish.
- 4 (7). Wings red or cinnabar-red in the basal part, always without a crimson or violet tinge. The dark band of the wings always distinct, completely developed, arcuate (Figure 1285).
- 5 (6). General coloring of the body lighter, yellowish or brownish-gray, tegmina often with indistinct brownish speckles. Base of hind tibiae sky-blue or darker blue. Wings less intensely red. Length of body ♂ 16-19, ♀ 23-27 mm, tegmina ♂ 16.0-18.5, ♀ 20-25 mm. —Mts. near Novorossiysk (!) and Anapa (!), Adzharia (!). Georgia, Armenia, eastern Turkey (region of Artvin, Oltu, and Erzurum!) to Lake Van in the south (Figures 1240, 1242, 1285)
 *2. P. oedipodioides I. Bol.

I Bolivar, 1899, Ann Soc Ent Belg., 43 593 Jakobson, 1905 260 Dirsh, 1949a 380, Figures 54, 59, 95. —uvarovi Dirsh, 1949a 383, Figures 71, 75, 90 —arpatchai Dirsh 1949a 384, Figures 72, 77, 98 (described from the Arpatchai River in Armenia)

- 608 6 (5). General coloring of body darker, from blackish-gray to nearly black, tegmina monochromatic, without dark speckles. Base of hind tibiae black, especially on the inside. Wings more brightly colored. Length of body ♂ 17-20, ♀ 22.0-26.5 mm, tegmina ♂ 15-18.5, ♀ 20-23 mm. —Principal Caucasian range Dagestan, Elbrus (!), northeastern Georgia (Mta-Tusheti, upper course of the Andyskii Koisu'). Found at an altitude of not less than 1,200 meters. *3. P. obscurus (Uv.)

Uvarov, 1927, Ann Mag Nat Hist, (9), XX 198 (Thalpomena) Dirsh, 1949a 385, Figures 79, 80, 93

- 7 (4). Wings violet in the basal part, bluish, or rose, in the last case always with a light crimson tinge. The dark band of the wings completely developed, abbreviated, or entirely absent.
- 8 (9). Wings with a dark band, often diffuse and indistinct but always with a dark radial arm along the anterior margin. Coloring of the basal part of the wing variable from rose with a crimson tinge (ab. roseipennis) to light violet (ab. violacea), or sky-blue (ab. coeruleipennis). Hind tibiae usually unevenly colored, in the basal part with a distinct light ring, in front of the middle and on the apex distinctly darker than in the remaining part. Length of body ♂ 16.0-18.5, ♀ 21-26 mm, tegmina ♂ 16.0-18.5, ♀ 19-24 mm. —Southern Transcaucasia valley of the Araks and Talysh, Turkmenia Kopet Dag, northern Iran from Shaku to

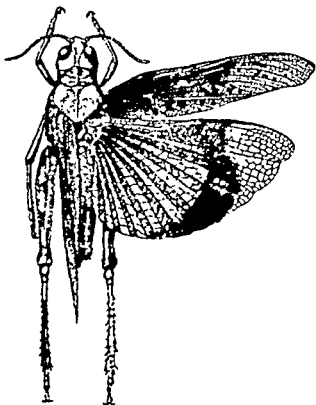


Figure 1285. Pseudocelus oedipodioides
I. Bol., ♀ (Dzhadzhur, Armenia). (Original)

to Teheran (and no doubt farther west to Azerbaijan, though there are no records from there) *4. P. persa (Sauss.)

Saussure, 1884:185 (Thalpomena) Jakobson, 1905:268, Uvarov, 1927a:126, Figures 138, 139 (Thalpomena) Dirsh 1949a:377, Figures 51, 56, 86 — popovi Dirsh, 1949a 381, Figures 62, 67, 88 — demavendi Dirsh, 1949a 382, Figures 63, 68, 91. — tari Dirsh, 1949a 382, Figures 64, 69, 97 — violaceus Dirsh, 1949a:383, Figures 65, 70, 85 — elbursi Dirsh, 1949a 384, Figures 73, 77, 98†

- 609 9 (8). Wings without the dark band or in the ♀ with a very weak band not reaching the anterior margin and entirely without the radial arm. Basal part of wing sky-bluish. Hind tibiae more uniformly colored, without the distinct light ring at the base and almost without signs of a stronger shading in front of the middle and on the apex. Dorsal margin of pronotum in profile slightly concave, especially in the ♂. Length of body ♂ 18.3, ♀ 22.0 mm, tegmina ♂ 17, ♀ 22 mm. — Northern Iran, province of Teheran (type ♂) 5. P. inornatus B. — Bienko sp. n.
- 10 (3). Hind tibiae dorsally rose-colored.
- 11 (12). Lateral lobes of pronotum nearly quadrate, as their length is nearly equal to their height. Wings light rose in the basal part, the dark band indistinct, with a radial branch. Sides of metazona of pronotum straight, strongly divergent. Length of body ♂ 18, ♀ 23 mm, tegmina ♂ 17, ♀ 21 mm. — Armenia Megry *6. P. zangezuri Dirsh,

Dirsh, 1949a:381, Figures 55, 60, 87

- 12 (11). Height of lateral lobes of pronotum nearly 1.5 times greater than the length. Wings basally reddish-rose. Sides of metazona of pronotum slightly roundly projecting, posteriorly weakly divergent. Length of body ♂ 16, ♀ 21 mm, tegmina ♂ 16, ♀ 21 mm. — Northern Armenia. Amamly Possibly a local subspecies of P. oedipodioides Bol. . . *7. P. armeniacus Dirsh,

Dirsh, 1949a:381, Figures 61, 66, 84

190. Genus Cophotylus Krauss

Krauss, 1902, Sitzb Akad. Wiss. Wien (6) 33 Dirsh, 1949a:388

Type of genus: Cophotylus steindachneri Kr., Arabia.

Close to Pseudocoles Bol., differing by the following characters. Body more slender and graceful. Antennae longer, in the ♂ significantly, in the ♀ distinctly longer than the head and pronotum. Head in profile slightly projecting upward above the level of the pronotum, frons a little more sloping (Figure 1241). Tegmina longer and not so wide, completely

† A large series of topotypes of this species from Shaku in northern Iran (in the collection of the Zool. Inst. AN, SSSR) proved to be variable in structure of the pronotum and has correspondingly been referred to P. persa, P. tari, P. popovi in Dirsh's paper

or nearly reaching the apex of the hind tibiae; spurious median vein straight or slightly curved, approaching M on the apex. Wings without the dark band with straight outer margin. Hind femora better proportioned, their length 3.3-4 times more than their width.

Dirsh referred 4 species to this genus of which—besides the above mentioned type of the genus—one species is distributed in the Sudan, and the others in western Pakistan (*C. splendens* Uv.) and in southern Iran (*C. iranicus* Dirsh). However, *C. purpureus* Uv., described from Afghanistan as a representative of the genus *Sphingonotus* Fieb., but having a weakly developed tympanal lobe and doubtless close to *C. splendens* Uv., must also be referred to this same genus; moreover, still
610 another species, close to the Afghan species, is found distributed in Pamir. Only these 2 species are considered below, they have wings purple at the base and very slender and graceful hind femora the length of which is 3.8-4 times more than the width.

1(2). Larger. Height of lateral lobes of pronotum only a little greater than their length. Eyes larger; their vertical diameter in the ♂ 1.8, in the ♀ 1.3 times greater than the subocular space. Space between the lateral lobes of the mesosternum in the ♂ a little, in the ♀ 1.5 times, wider than its length. Pronotum sharply intersected by the posterior transverse groove. Wings purple near the base, clear as glass in the remaining part. Length of body ♂ 22-24, ♀ 27 to 29 mm; tegmina ♂ 23.5-25.0, ♀ 27.5-30.0 mm.—Western Pamir: Khorog and Rushan (type ♂). (Figure 1241). *1. *C. decorus* B.-Blenko sp. n.

2(1). Smaller. Height of lateral lobes of pronotum more than 1.5 times more than their length. Vertical diameter of the eye in the ♀ slightly greater than the subocular space. Space between the lateral lobes of the mesosternum in the ♀ hardly wider than long. Posterior transverse groove of pronotum not deeper than the preceding [ones]. Wings colored as in the preceding [species]. ♂ unknown. Length of body ♀ 22, tegmina 21 mm.—Afghanistan: hills near Kabul
. 2. *C. purpureus* (Uv.)

Uvarov, 1940, Ann. Mag. Nat. Hist., (11) VI:55 (*Sphingonotus*).

191. Genus *Heliapteryx* Uv.

Uvarov, 1914, Izvestiya kavkazskogo muzeya, VIII:140, Bei-Blenko, 1950a:203-205.

Like *Sphingonotus* Fieb. (see below) but differing by the small tympanal lobe, which covers less than 1/3 of the opening of the tympanal organ, and also by the fact that the dark band gives off a short arm toward the base of the wing (Figure 1244). Pronotum (Figure 1245) with a very weak, nearly disappearing median carina; prozona cylindrical, its dorsal margin—when seen from the side—situated lower than the level of the metazona.

The presence of a radial arm on the wings, and also the weak development of the tympanal lobe sharply differentiates this genus from the genus *Sphingonotus* Fieb., in which it has been included by several investigators.

Only one species is known.

- 1(1). Gray or yellowish-gray. Antennae long, slender, in ♂ twice in the ♀ 1.5 times longer than the head and pronotum. Vertex swollen, eyes large, elongated. Wings in the basal part, bright rose, apex clear as glass, the dark band not quite reaching the posterior margin of the wing. Hind tibiae light, with a dirty sky-blue apex. Length of body ♂ 20-25, ♀ 28-37 mm, tegmina ♂ 20-25, ♀ 28.5-35.0 mm. -Azerbaijan, Armenia, western Iran south to Arabistan, Asia Minor. (Figures 1243-1245) *1. H. humeralis (Kuthy).

Kuthy, 1907, Ann. Mus. Hist. Nat. Hung., V 431 (Sphingonotus), Uvarov, 1919, Izvestiya kavkazskogo muzeya, XII:157, Mishchenko, 1936 262 (Sphingonotus), Tarbinski, 1940 33, 210 (Sphingonotus) Bei-Bienko, 1950a 203, Figure 9 -satunini Uvarov, 1914, Izvestiya kavkazskogo muzeya, VIII 140

192. Genus Eusphingonotus B.-Bienko

Bei-Bienko, 1950a 202, 204

Lake Sphingonotus Fieb. (see below) but differing by the following characters. The convex pad on the anterior margin of the mesosternum with coarse impressed dots, rugulose, especially in the ♀. Ventral margin of the sclerite of the second thoracic spiracle projecting in the form of a plate-like lobe, equal in height to the [one] situated in front of the lobe on the ventral margin of the epimere of the mesosternum. Subgenital plate of the ♂ strongly dorso-ventrally flattened, with a broadly rounded posterior margin, it is tongue-shaped (Figure 1247). Ventral valves of ovipositor in the ♀ slender, straight, without a distinct notch and strong process on the outer margin.

One species is known, from Japan.

- 1(1). Large, brown in color, with monochromatic antennae without dark rings. The spurious median vein of the tegmina on the apex approaching M. Wings with a sky-blue base and rather wide dark band which does not touch the posterior margin. Hind femora dark on the inside with 2 indistinct light bands, hind tibiae yellow, sometimes with a sky-bluish tinge. Length of body ♂ 26.0-29.5, ♀ 32-37 mm, tegmina ♂ 28.5-31.0, ♀ 34.5-38.0 mm. -Japan. (Figure 1247) 1 Eu. japonicus (Sauss.)

Saussure, 1888 84 (Sphingonotus) Jakobson, 1905 275 (Sphingonotus) Mishchenko 1936 91, 260 Figure 10 (Sphingonotus) Bei-Bienko 1950a:202, Figures 1, 2

193. Genus Sphingonotus Fieb. -Desert locust [Pustynnitsa].

Fieber, 1852 in Kelch Grunzl Orth. Oberschles. 2 Brunner, 1882 149, Saussure, 1884 196 Jakobson 1905:272 Uvarov, 1927a 128, Mishchenko, 1936:72, Bei-Bienko, 1950a:199, 204

Type of genus: Sphingonotus coeruleus L.

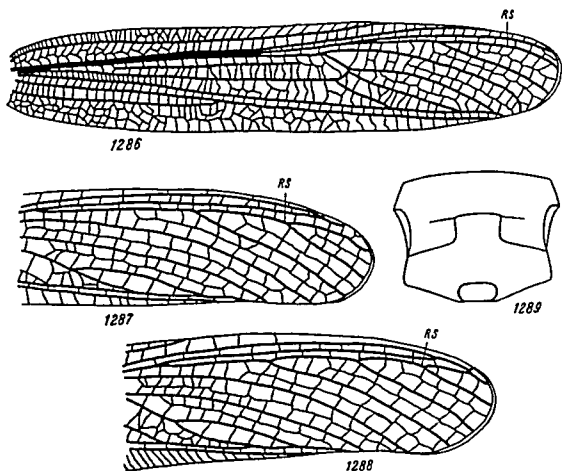
Vertex roundly extending over into the frons; foveolae, if developed, situated on the sloping [or beveled] margins of the vertex; frontal ridge near the fastigium flat or with a weak groove. Pronotum (Figure 1246) saddle-shaped, narrowed and constricted in the prozona, median carina low, thin, often partly obsolete, intersected by 3 transverse grooves; antero-ventral angle of lateral lobes obtuse or right-angled, not produced in the form of a process. Prosternum between the bases of the front legs not swollen in the form of a tumor, the pad along the anterior margin of the mesosternum not rugulose, the space between its lateral lobes 1.2-2.5 times wider than it is long. The sclerite of the second thoracic spiracle (above the base of the middle legs) ventrally not lobately raised. Spurious median vein of tegmina more convex than the adjacent sector R and M, often granular or dentate, the space between R and M without convex transverse veins. Wings usually with a colored base, often with a dark band; longitudinal veins of the fan of the wing not thickened or weakly thickened; veins $2A_1$ and $2A_2$ running together along the middle of the second (anal) lobe of the wing, 1-A (on the boundary between the first and second lobes) not thickened. Spurs on the distal end of the hind tibiae normal, not elongated. Tympanal lobe well developed, separated in the form of a plate, covering $1/3-1/2$ of the opening of the sound organ (Figure 1232). Subgenital plate in the σ bluntly conical. Valves of φ ovipositor bent like hooks, thickened at the base, the ventral pair with a strong process along the outer margin (Figure 1248).

About 60 species are known which are distributed predominantly in the deserts of Mongolia, Middle and Hither Asia, and North Africa; a few species are known from the southern parts of Europe, South Africa, India, and Central America, and adjacent countries. 36 species are considered below, of which 23 are found in the U. S. S. R., and the rest distributed in adjacent countries with the possibility of finding some of them within the borders of the U. S. S. R. not excluded.

In way of life nearly all *Sphingonotus* species are open geophiles, i. e., inhabitants of the surface of ground without dense vegetation. Many species are connected only with a certain type of desert and can serve as characteristic and reliable indicators of corresponding desert coenoses. Some species, especially in the northern parts of their area, stay on rocky banks of rivers and sandy areas.

As a consequence of the great similarity, many species, determining them is often very difficult; this is especially true of the group of species without the dark band on the wings. Therefore it is desirable to have a collection of several accurately identified species for comparison, in order to determine these species (and their subspecies) correctly.

- 1 (50). Wings without a dark or with a weak band, either with diffuse margins or not reaching the anterior margin of the wing; if the dark band is completely developed then the space between the lateral lobes of the mesosternum is wide, 2-2.2 times wider than long.
- 2 (3). Transverse groove of mesosternum in the median part distinctly convex anteriorly. Dorsal valves of φ ovipositor on the outer margin with a narrow pre-apical notch, separating off a blunt tooth-like process. Hind femora on the inside yellow, without dark bands; hind tibiae distinctly shorter than the hind femora. Postero-ventral angle of lateral lobes of the pronotum ventrally with an obtuse-angled



Figures 1286-1289
(Original)

1286—Sphingonotus halophilus B.-Blenko, ♀, right tegmen; 1287—S. rubescens fallax Mistsh., ♂, upper half of right tegmen; 1288—S. elegans Mistsh., ♂, ibidem, 1289—S. kirgisticus Mistsh., ♀, mesothorax and metathorax from below.

process. Wings hardly bluish at the base, without the dark band.
 ♂♂ Unknown. Length of body ♀ 19.5, tegmina 19.5 mm. —Iran:
 Isfahan. 1. S. isfaghanicus Predt.

Predtechenski in: Mishchenko, 1936:136, Figures 13, 49, 50.

- 3 (2). Transverse groove of mesosternum straight or slightly arcuate. Dorsal valves of ♀ ovipositor normal, without the sharp preapical notch and the tooth-like process. Hind femurs on the inside with 1 to 3 dark or light bands.
- 4 (49). Median carina of pronotum on all its extent low, in the anterior part of the prozona not raised in the form of a small crest (Figure 1246).
- 5 (10). RS of tegmina posterior with only one branch (Figure 1286). Wings completely or nearly colorless. Postero-ventral angle of lateral lobes of pronotum broadly rounded.
- 6 (9). Hind tibiae rather dirty pale-yellow. Tegmina on the apex not narrowed, with broadly rounded end. Lateral carinae of the frontal ridge extending onto the fastigium.
- 7 (8). Hind tibiae not shorter than the hind femora; hind femora slender and graceful, their length 4 times more than their width. Pronotum anteriorly hardly constricted, metazona 1.5 times longer than the prozona and in profile not projecting above the level of the prozona; median carina in the anterior part of the prozona well marked. Body more slender and graceful; tegmina extending considerably beyond the tip of the abdomen. Wings elongate-triangular, with a very faint sky-blue tinge near the base. Length of body ♂ 13.5, ♀ 20.0-21.5 mm; tegmina ♂ 14, ♀ 19.5 mm. —China: eastern Tsaidam
- 2. S. tzaidamicus Mistsh.

Mishchenko, 1936 79, 113, Figures 11, 32, 33.

- 8 (7). Hind tibiae considerably shorter than the hind femora and amounting to only 3/4 of the length of the latter; hind femora stout, [thickset] 3.2 times longer than wide. Pronotum anteriorly distinctly constricted; metazona 1.2-1.4 times longer than the prozona and in profile slightly projecting above the level of the prozona; median carina in the anterior part of the prozona weak or obsolete, not raised. Body more thickset, tegmina in the ♀ extending only slightly beyond the tip of the abdomen. Wings wide almost in the form of a square, perfectly colorless. Length of body ♂ 13.0-15.5, ♀ 18-21 mm; tegmina ♂ 12.5-14.5, ♀ 14.0-16.5 mm. —Kazakhstan: Zaisan depression, region of the Semipalatinsk, Dzhezkazgan (!), Turgai (!) and the northern boundary of Betpak-dal (!). On salt marshes with sparse vegetation and in "takyr" [i. e., sand and clay-mixed]. (Figure 1286). *3. S. halophilus B. —Blenko —Saline soil light-winged desert locust [Svetlokrylaya solonchakovaya pustynnitsa].
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Bel-Blenko, 1929, Eos, V:121, Mishchenko, 1936:111.

- 9 (6). Hind tibiae bright reddish-orange. Tegmina distinctly narrowed at the apex, with narrowly rounded ends. Lateral carinae of the frontal ridge broken off at the ventral margin of the fastigium. Eyes very large, ventral margin of antennal sockets situated distinctly higher than the imaginary line connecting the ventral margins of the eyes. Hind tibiae perceptibly shorter than the hind femora. Wings with a faint sky-bluish tinge near the base. Length of body ♂ 14.5, ♀ 21.5-22.5 mm, tegmina ♂ 13.5, ♀ 18-19.5 mm. —Central Iran
Yezd 4. S. rufipes Predt.

Predtechenski in: Mishchenko, 1936 115, Figures 34, 35.

- 10 (5). RS of tegmina posteriorly with 2-4 branches (Figures 1287, 1288) (specimens of S. halocnemi Uv. and S. bey-bienkoi Mistsh., having only 1 branch, are found as a rare exception).
11 (47). Principal longitudinal (i. e., the jugal) veins of the fan of the wing not black, or only part of them in the apical half black. Sides of abdomen smooth or with sparse little impressed dots. Ventral margin of hind femora practically straight in the middle part.
12 (48). Dorsal valves of ♀ ovipositor near the base strongly thickened (Figure 1248). Wings with or without the dark band, in the latter case the postero-ventral angle of the lateral lobes of the pronotum is either obliquely truncate or has an obtuse angled process, or the base of the ventral valves of the ♀ ovipositor has rugose tubercles ventrally.
13 (20). Tegmina relatively wide, their length only 4.0-5 times more than their greatest width. The dark bands on the tegmina are well marked, RS in both sexes posteriorly with 2 branches. Wings without the dark band. Postero-ventral angle of lateral lobes of the pronotum broadly rounded.
14 (15). Body nearly bare. Space between the lobes of the mesosternum narrower, 1.5-1.8 times wider than long (Figure 1289). Hind femora black on the inside with a light pre-apical band, hind tibiae sky-bluish. Tegmina with 2 dark often weakly marked bands at the base and along the middle. Vertex extending roundly over into the front, frontal ridge not projecting forward between the antennae. Length of body ♂ 14-15, ♀ 19.0-20.5 mm, tegmina ♂ 13-15, ♀ 17-19.5 mm. —Kirghizia Issyk-kul' depression, China Kashgaria. Mountainous stony deserts *5. S. kirgicus Mistsh.

Mishchenko, 1936, 122, Figures 40, 41

- 15 (14). Body, ventrally, with rather dense hairs especially the pronotum and thorax. Space between the lobes of the mesosternum wider, 2-2.5 times wider than long. Hind tibiae whitish or yellowish, but if sky-bluish then in the ♂ the frontal ridge sharply projects forward between the eyes, and the vertex makes a distinct obtuse angle with the frons.
615 16 (19). Pronotum with a weak constriction in the anterior part, meta/ona with weakly projecting, nearly straight humeri. Tegmina with 2 dark bands, but if with a suggestion of a third band, then the vertex in the ♂ is as described in 10 (17).

- 17 (18). Vertex extending roundly over into the frons, frontal ridge in profile not projecting forward between the bases of the antennae. Lateral lobes of mesosternum very short and wide, twice wider than they are long. Hind femora on the inside dark, with 2 light bands; hind tibiae rather dirty yellow. ♀ Unknown. Length of body ♂ 13, tegmina 12.5 mm. —Iran: northern Khorasan.
 6. S. minutus Mistsh.

Mishchenko, 1936:120, Figures 38, 39.

- 18 (17). ♂ vertex making a distinct obtuse angle with the front; frontal ridge in profile distinctly projecting forward between the bases of the antennae, especially in the ♂. Lateral lobes of mesosternum only 1.5 times wider than long . . . *7. S. pamiricus Rme.
 a (d). Hind tibiae whitish or rather dirty yellow. Tegmina nearly or entirely reaching the apex of the hind tibiae. Wings faint sky blue at the base.
 b (c). Hind femora on the inside dark, with 2 light bands (Figure 1290), one of which is sometimes incomplete. Metazona of the pronotum 1.5-1.7 times longer than the prozona. Tegmina with 2 dark bands, the apical third with dark spots. Length of body ♂ 13.5 to 15.0, ♀ 18.5-21.0 mm; tegmina ♂ 15.3-15.5, ♀ 18.0-19.5 mm. —Central and eastern Pamir. *7a. S. pamiricus pamiricus Rme.

Ramme, 1930, Mitt. Zool. Mus. Berl., XVI:212, tab. 1, Figures 2a, 2; Mishchenko, 1936:124, Figures 42, 43.

- c (b). Hind femora on the inside black, with one light preapical band. Metazona of pronotum 1.8-2 times longer than the prozona. Tegmina often with a rudiment of a third dark band in the apical third. Length of body ♂ 12-14, ♀ 17 to 21 mm; tegmina ♂ 15-16, ♀ 18-20.5 mm. —Western and central Pamir.
 *7b. S. pamiricus occidentalis Mistsh.

Mishchenko, 1936:126, Figure 44.

- d (a). Hind tibiae sky-bluish; hind femora on the inside colored as in the preceding subspecies. Tegmina reaching the middle or the base of the apical third of the hind tibiae, the apical third of the tegmina sometimes with the rudiments of a third dark band. Wings light sky blue at the base. Length of body ♂ 14.5-15.0, ♀ 19.0-20.5, tegmina ♂ 14.0-15.5, ♀ 18-19 mm. —Eastern Tadzhikistan (Darvaz) and western Pamir (Khorog, type ♀)
 *7c. S. pamiricus coeruleus B.-Bienko subsp. n.
 19 (16). Pronotum with a strong constriction in the anterior part; metazona with rounded strongly projecting shoulders. Tegmina with 3-4 dark bands. Hind femora on the inside with 2-3 light bands (Figure 1291), hind tibiae sulphur yellow. Vertex extending roundly over into the front. *8. C. zebra Mistsh.
 a (b). Hind tibiae with a dark ring in front of the middle. Frontal ridge roundly projecting forward between the bases of the antennae, at

the ocellus, when seen in profile, slightly notched, especially in the ♀, effaced in the ♀ before the clypeus. Length of body ♂ 15.5-18.0, ♀ 19.5-27.5 mm, tegmina ♂ 14.5-17.5, ♀ 19.0-23.5 mm.—Uzbekistan north slopes of the Hissar range, 2,775-2,960 meters. (Figure 1291). *8a. S. zebra zebra Mistsh

Mishchenko 1936:127, Figures 6, 45, 46

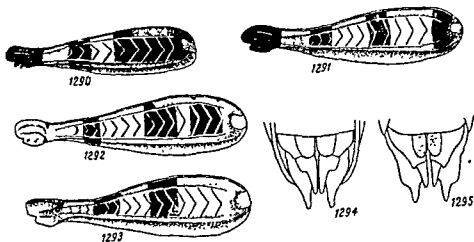
- b (a). Hind tibiae without the dark ring in front of the middle. Frontal ridge between the bases of the antennae not projecting forward, at the ocellus without the notch, below the ocellus in the ♀ it is distinct almost to the clypeus itself. Dimensions as in the preceding species.—Uzbekistan north slopes of the Zeravshan range. (Voru, type ♀) *8b. S. zebra flavipes B. -Bienko subsp. n.
- 20 (13). Tegmina narrower, their length 5.5-6.4 times more than the width.
- 21 (22). Hind tibiae vivid sulphur yellow. Postero-ventral angle of lateral lobes of pronotum ventrally with a weak obtuse-angular process which is nearly rounded. Space between the lateral lobes of the mesosternum 1.5-1.8 times wider than long. Ventral valves of ♀ ovipositor ventrally near the base with rugose tubercles (as in Figure 1295) 9. S. theodori Uv.
- a (b). Hind femora yellow on the inside with 1-2 dark bands. Wings nearly colorless. Length of body ♂ 14.5-19.0, ♀ 22-27 mm, tegmina ♂ 17-22, ♀ 24-26 mm.—Asia Minor, southwestern Iran, Palestine, Sinai 9a. S. theodori theodori Uv.

Uvarov, 1924, Bull. Soc. Ent. Egypte, 1923 195, 2, 3, Mishchenko, 1936:159

- b (a). Hind femora on the inside dark, with 2 light bands. Wings sky-blue. Length of body ♂ 14.5-16.5, ♀ 21.5-24.5 mm, tegmina ♂ 14.0-17.5, ♀ 23.5-26.5 mm.—Iran except the southwestern part, north to the boundary with Turkmenia 9b. S. theodori iranicus Mistsh.

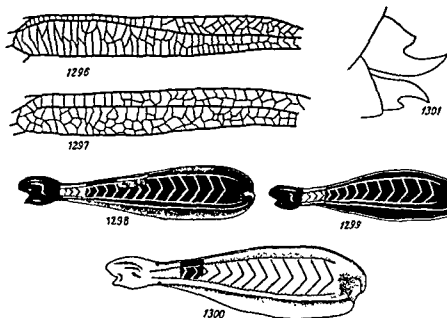
Mishchenko, 1936 161, Figures 63, 64

- 22 (21). Hind tibiae from sky blue to dark blue in color or yellowish, but not bright sulphur yellow.
- 23 (26). Hind femora on the inside light, with 3 dark bands, of which one is situated at the base of the femur (Figure 1292). Sclerite of mesothoracic spiracle (above the base of the middle femur) triangular. Dark bands of tegmina narrow, the middle band usually darker in front than behind. RS of ♂ tegmina posteriorly with 2 branches (as in Figure 1287).
- 24 (25). Larger. Spurs of hind tibiae longer, ventral inner spur reaching the preapical tubercle on the first segment of the hind tarsi, the length of the dorsal outer spur 1.5 times more than the thickness of the adjacent part of the hind tibia. Space between the lateral lobes of the mesosternum 1.5 times wider than long. Postero-ventral angle of lateral lobes of pronotum not sharply truncate or



Figures 1290-1295
(Original)

1290—Sphingonotus pamiricus Mistsh., ♂, coloring of hind femur from within; 1291—S. zebra Mistsh., ♂, ibidem; 1292—S. miramae Mistsh., ♂, ibidem; 1293—S. maculatus Uv., ♂, ibidem; 1294—S. rubescens Walk., ♀, tip of abdomen from below; 1295—S. coerulipes Uv., ♀, ibidem.



Figures 1296-1301
(Original)

1296—Sphingonotus rubescens fallax Mistsh., ♂, median field of tegmen with spurious median vein; 1297—S. lucidus Mistsh., ♂, ibidem; 1298—S. rubescens Walk., ♂, coloring of hind femur from within; 1299—S. coerulipes uvarovianus B.-Buenko, ♂, ibidem; 1300—S. savignyi Sauss., ♂, ibidem; 1301—S. satrapes Sauss., ♀, ovipositor from side.

in the ♀ sometimes with a weak process. Length of body ♂ 15-17, ♀ 18.5-22.5 mm, tegmina ♂ 17.0-18.5, ♀ 20-23.5 mm. —Turkmenia, southern Uzbekistan. Flies in the direction of light at night (Figure 1292). *10. S. miramae Mistsh.

Mishchenko, 1936 138, Figures 17, 51, 52, Bogush, 1948 20

25 (24). Smaller. Spurs of the hind tibiae short, ventral inner spur not reaching the preapical tubercle on the first segment of the hind tarsi, dorsal outer spur not longer than thickness of adjacent part of the hind tibia. Space between the lateral lobes of the mesosternum twice wider than long. Postero-ventral angle of lateral lobes of pronotum broadly rounded. Length of body ♂ 14.5, ♀ 19.0-20.5 mm, tegmina ♂ 14.5-15.0, ♀ 18.5-19.0 mm. —Turkmenia western Kopet Dag (canyon of Guven-dere, type ♀)

. *11. S. turcmenus B.-Bienko sp. n.
26 (23). Hind femora on the inside dark with 1-2 light bands (Figures 1298, 1299) or light with 2 dark bands (Figure 1293). Sclerite of mesothoracic spiracle oval or roundly triangular.

27 (28). Hind femora on the inside light, with 2 black bands (Figure 1293), but if black with 2 light bands, then the spurs of the hind tibiae are slightly long compared to the norm, as described below in d(a). Tegmina usually with 3 dark bands, lateral lobes of pronotum often with a dark spot anteriorly. Head in profile even in the ♀ strongly projecting above the level of the pronotum (Figure 1246). Ventral margin of lateral lobes of pronotum strongly sloping straight, the antero-ventral angle very obtuse, the postero-ventral with a produced triangular process or obliquely truncate (Figure 1246) *12. S. maculatus Uv.

a (d). Hind femora on the inside light with 2 black bands (Figure 1293). Spurs on the apex of the hind tibiae shorter, the inner ventral spur not reaching the middle tubercle on the first segment of the hind tarsus.

618 b (c). Hind tibiae dirty whitish or yellowish. Tegmina with 3 distinctly outlined dark bands. Wings pale sky-bluish at the base, sometimes nearly colorless. General coloring of body yellowish, more rarely yellowish gray. Length of body ♂ 17.0-22.5, ♀ 20-31 mm, tegmina ♂ 16.5-21.5, ♀ 21-28 mm. —Lower Volga Region, deserts of Kazakhstan to the valley of the Il, Middle Asia (except the mts.), northern Iran, Afghanistan. Clayey deserts, in the northeastern area also sandy-gravel river alluvia *12a. S. maculatus maculatus Uv.

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Uvarov, 1925, Jour Bomb. Nat Hist. Soc., XXX:264 Uvarov, 1927a 134 Figure 142 Mishchenko, 1936:130 Figure 7

c (d). Hind tibiae sky-bluish. Tegmina with 3 distinct dark bands, or with the third (apical) band weakly marked or broken up into spots. Wings completely sky-bluish at the base. General coloring of body dark gray. Length of body ♂ 15.5-17.0, ♀ 20-21 mm, tegmina ♂ 15-18, ♀ 18.5-21.5 mm. —Southeastern Kazakhstan southern Alakul depression (type ♀, river Ragaty at the Dzungarian pass),

northern Kirghizia: Mt. Susamyr. Mountainous rocky slopes and rocky sub-mountain deserts. *12b. S. maculatus petraeus B. -Blenko subsp. n.

—rubescens Bel-Bienko, 1949c:722 (not Uvarov).

- d (a). Hind femora on the inside black with 2 light bands. Spurs on the hind tibiae longer, the inner ventral spur reaching the middle tubercle on the first segment of the hind tarsus. Hind tibiae sky-bluish. Body yellowish gray; head and pronotum with small dark speckles; apical band of tegmina often broken up into spots; wings completely sky-bluish at the base. Length of body ♂ 15.5-16.5, ♀ 21-22 mm; tegmina ♂ 16-18, ♀ 22-23 mm. —Eastern Kazakhstan: sands of Sary-kum (Uch-dzhal-kum, type ♀). Stays on "fixed" sands. *12c. S. maculatus extimus B. -Blenko subsp. n.

Bel-Bienko, 1949c:724.

- 28 (27). Hind femora on the inside dark, with 1-2 light bands (Figures 1298, 1299), spurs of hind tibiae short. Tegmina with only 2 dark bands or with small scattered speckles, not making a band. Lateral lobes of pronotum always without a dark spot.
- 29 (30). Body small, delicate, very slender and graceful. Tegmen very narrow, 6 to 6.4 times longer than its greatest width, with dark speckles, not making distinct bands; RS behind in the ♂ with 2 branches (more rarely with one) in the ♀ with 2-3 branches. Wings nearly or entirely colorless at the base. Postero-ventral angle of lateral lobes of pronotum rounded or in the ♀ often with a weak process. Length of body ♂ 12.5-14.0, ♀ 16.5-19.0 mm; tegmina ♂ 13.0-15.5, ♀ 18.5-21.5 mm. —Kazakhstan: from the lower course of the Ural river, the Bol'shie Barsuki and Malye Barsuki sands and the lower course of the Syr Darya to Balkhash-Alakul depression and the valley of the Ili; Uzbekistan: lower course of the Amu Darya; northern Kirghizia; China: Dzungaria. Salt marshes and "takyrs", often staying in Halocnemum strobilaceum bushes. Variety: head often strongly projecting above the pronotum, the dorsal valves of the ♀ ovipositor sometimes with a rounded process in the basal part. *13. S. halocnemi Uv. —Salsola desert locust [Solyankovaya pustynitsa].

Uvarov, 1925, Journ. Bomb. Nat. Hist. Soc., XXX:265; Uvarov, 1927a:134, Mishchenko, 1936:132, Bel-Bienko, 1948, Izvestiya AN Kazakhskoi SSR (seriya zoologicheskaya), 8:191.

- 618 30 (29). Body larger and more thickset; ♂ more than 14, ♀ more than 21 mm; but if smaller then the tegmina are wider, 5.5 times longer than wide. Dark bands on the tegmina well marked. The wings are either distinctly sky-bluish at the base or the postero-ventral angle of the lateral lobes has an elongated process.
- 31 (34). Spurious median vein of the tegmina curved in an S-shape, approaching M on the apex (Figure 1296). Space between the lateral lobes of the mesosternum 1.2-1.5 times wider than long. Base of ventral valves of ♀ ovipositor ventrally smooth or with weak sparse tubercles (Figure 1294).

- 32 (33). Body and legs with sparse hairs. Hind femora on the inside blackish, with 2 light bands, of which one is often incomplete (Figure 1298). Hind tibiae sky-bluish or yellowish. Pronotum moderately narrowed in the anterior part, but distinctly constricted, the postero-ventral angle of the lateral lobes produced or in the σ at least with an obtuse angular process (even though it may be weak). Vertex with sharp raised lateral carinae and often with a longitudinal median carina. *14. S. rubescens (Walk.)
- a (d). Hind femora on the inside only with one complete light band, the other band incomplete (Figure 1298).
- b (c). Tegmina without dark bands, with small scattered speckles, their length 5.8-6 times more than their width, RS in the σ posteriorly with 3 branches. Length of body σ 15.5-23.0, φ 20-33 mm, tegmina σ 17.5-28.0, φ 24-35 mm. —Lower Volga Region, Dagestan, Transcaucasia, Kazakhstan, Middle Asia (except the mts.), India, Kashmir, western Pakistan, Hither Asia, North Africa, Greece. Southern specimens are larger than northern. Often found on pebbles along the banks of rivers. (Figures 1294, 1298).
- 14a. S. rubescens rubescens (Walk.)

Walker, 1870, *Zoologist* (2), V:2304 (*Oedipoda*); Uvarov, 1927a:134, Figure 157; Mishchenko, 1936 168, Figures 8, 18

- c (b). Tegmina with 2 dark bands, their length 5.5-5.7 times more than their width, RS in the σ posteriorly with 2 branches. Length of body σ 15-18, φ 23-26 mm, tegmina σ 16-19, φ 24.5-26.0 mm. —Kirghizia: depression of Lake Issyk-kul (type φ), mountainous rocky deserts, often together with S. kirgisicus Mistsh.
- *14b. S. rubescens subfasciatus B.-Bienko subsp. n.
- d (a). Hind femora on the inside with 2 complete light bands.
- e (h). Tegmina with 2 dark bands and small speckles in the apical part. Wings, sky-bluish near the base.
- f (g). Hind tibiae sky-bluish. Tegmina 5.5-5.8 times longer than wide, RS posteriorly in the σ with 3, in the φ with 3-4 branches. Length of body σ 17.5-20.0, φ 24-27 mm, tegmina σ 19.5-21.0, φ 25.0-29.5 mm, —Mts. and foothills of southeastern Kazakhstan, Kirghizia, and Tadzhikistan, in the upper course of the river Chu transitional to the preceding subspecies, in the foothills of Dzungarian Ala Tau sometimes transitional in form to the basic subspecies.
- *14c. S. rubescens fasciatus Mistsh.

Mishchenko, 1936:171, Figures 69, 70

- g (f). Hind tibiae whitish or yellowish. Tegmina 6 times longer than wide, RS behind in the σ with 2 (Figure 1287), in the φ with 3 branches. Length of body σ 17.5-18.0, φ 28 mm, tegmina σ 18.5-20.5, φ 30.2 mm. —Kashmir; eastern Tadzhikistan Darvaz (transitional form to the preceding subspecies). Sandy shores of mountain rivers (Figure 1288).
- *14d. S. rubescens fallax Mistsh.

Mishchenko 1936:153, Figures 5, 12, 11, 13

- h (e). Tegmina without dark bands, with a few indistinct spots, 6 times longer than wide, RS posteriorly with 3 branches. Wings perfectly colorless. Body light yellow. Length of body ♂ 22, ♀ 27 mm; tegmina ♂ 23.5, ♀ 29.5 mm. —Northern Afghanistan. 14e. S. rubescens afghanicus Mistsh.

Mishchenko, 1936:163, Figures 65, 66.

- 33 (32). Body and legs with long dense hairs. Hind femora on the inside shiny black with 1 light preapical band. Hind tibiae blue-black with a light base. Pronotum in the anterior part strongly narrowed, but with a weak constriction; postero-ventral angle of lateral lobes broadly rounded. Vertex without longitudinal median carina. Wings bright sky blue at the base. Length of body ♂ 17-18, ♀ 25-28 mm; tegmina ♂ 17-18, ♀ 23.0-26.5 mm. —Southern Transcaucasia, southern Turkmenia; Iran, Asia Minor. *15. S. pilocus Sauss.

Saunders, 1884:201; Uvarov, 1927a:134, Figure 143, Mishchenko, 1936:239.

- 34 (31). Spurious median veins of tegmina straight, not approaching M on the apex (Figure 1297).
- 35 (40). Hind femora on the inside dark with 2 complete light bands. The pads near the base of the ventral valves of the ♀ ovipositor with tubercles (as in Figure 1295). Wings without a dark band.
- 36 (39). Tegmina with parallel sides up to the very apex, the apex widely rounded; RS in the ♀ with 3-4 branches behind. Lateral lobes of pronotum in the ♀ distinctly higher than long, their postero-ventral angle in both sexes produced or with a weak obtuse-angular process, or obliquely truncate. Eyes oval. Space between the lateral lobes of the mesosternum 1.3-1.5 times wider than long.
- 37 (38). Tegmina very long, reaching the apex of the hind tibiae or extending a little beyond it. Pronotum elongated; metazona nearly twice longer than the prozona and only a little shorter than its own width at the shoulders. Genicular part of the inner aspect of the hind femora light. Length of body ♂ 14.5-22.5, ♀ 23.0-31.5 mm; tegmina ♂ 19-24, ♀ 24-30 mm. —Middle Asia north to Nur-atin mts. and the Aral Sea; Dzungaria, Mongolia. In Middle Asia there are individuals with scattered speckles on the tegmina and with yellowish hind tibiae individuals from Mongolia and China usually have dark bands on the tegmina and often sky-bluish hind tibiae (Figure 1288) *16. S. elegans Mistsh.

Mishchenko, 1936:165, Figures 67, 68.

- 38 (37). Tegmina not so long, not reaching the apex of the hind tibiae, with dark bands; RS in the ♂ with 2 branches behind. Pronotum short and wide; length of metazona only 1.5 times more than the prozona and nearly 1/2 its own width at the shoulders. Hind tibiae yellowish sky-blue. Length of body ♂ 14.0-17.5, ♀ 21.5-23.5; tegmina ♂ 16.5-18.0, ♀ 22.0-24.5 mm. —Pamir (Figure 1297) *17. S. lucidus Mistsh.

- 39 (36). Tegmina in the apical fourth slightly narrowed toward the end, RS in the ♀ with 1-2 branches. Lateral lobes of pronotum in the ♀ nearly quadrate, their postero-ventral angle in both sexes broadly rounded. Eyes nearly completely round. Space between the lateral lobes of mesosternum in the ♀ twice, in the ♂ 1.5-1.8 times wider than long. Color of body often with an admixture of a white color, tegmina with 2 dark bands, the wings hardly sky-bluish at the base; hind tibiae slightly dirty sky-bluish or yellowish. Length of body ♂ 14.5-17.0, ♀ 18.5-25.0 mm; tegmina ♂ 15.0-16.5, ♀ 17-24 mm. — Central Kazakhstan (Turgai, deserts of Bet-pak-dal, Dzhezkazgan!), northern Kirghizia, Tuva Autonomous Region, southern Transbaikal (!), Mongolia, northwestern China. *18. S. bey-bienkoi Mistsh.

Mishchenko, 1936 143, Figures 57-58

- 40 (35). Hind femora on the inside dark, with one complete light band (Figure 1299), but if with 2 light bands then the ventral valves of the ♀ ovipositor smooth ventrally near the base or wings with dark band.
- 622 41 (42). Hind femora slender and graceful with more elongate apical part, their length 4.2-4.3 times more than their greatest width. Inner aspect of hind femora greenish or blackish blue. Space between the lateral lobes of the mesosternum narrow, only 1.2-1.3 times wider than long. Tegmina without distinct dark bands or spots. Lateral lobes of pronotum narrow, their height 1.5 times more than their length, postero-ventral angle broadly rounded. Eyes large, in the ♂ 1.5 times longer than the subocular groove, in the ♀ narrow, barely longer than the latter. Pads near the base of the ventral valves of the ♀ ovipositor smooth. 19. S. fuscus Predt.
- a (b). Smaller. Hind tibiae sky blue. The light preapical band on the inner aspect of the hind femora bluish-green. RS of the ♂ tegmina posteriorly with 2 branches. ♀ unknown. Length of body ♂ 17.5, tegmina 16 mm. — Southwestern Iran, Kurdistan. 19a S. fuscus fuscus Predt.

Predtechenski in Mishchenko, 1936 134, Figures 47, 48

- b (a). Larger. Hind tibiae greenish sky blue. Light preapical band on inner aspect of hind femora yellow. RS of ♂ tegmina posteriorly with 2-3 branches. Length of body ♂ 21, ♀ 26.0-28.5 mm, tegmina ♂ 20-21, ♀ 24.5-27.5 mm. — Northwestern Iran. Khamadan. 19b. S. fuscus mistshenkoi Predt.

Predtechenski in Mishchenko, 1936 172, Figures 14, 71, 72

- 42 (41). Hind femora more thickset, with shorter apical part, their length only 3.5-3.8 times more than their width. Inner aspect of hind

femora black with 1-2 light bands. Space between the lateral lobes of the mesosternum wider, 1.5-2.2 times wider than long. Tegmina usually with dark bands.

43 (46). Wings without a dark band or if a band is present then it is indistinct, diffuse, smoky.

44 (45). More thickset and wider at the humeri. Eyes not large; their vertical diameter in the ♂ equal to the length of the subocular groove or barely larger than that, in the ♀ shorter, more rarely nearly equal to it. Pronotum anteriorly narrowed more strongly but the constriction is weaker; lateral lobes wider, in the ♀ counting from the level of the antero-ventral margin, nearly quadrate, the ventral margin strongly sloping, usually straight, postero-ventral angle acute, often strongly produced ventrad. Pads near the base of the ventral valves of the ovipositor smooth (only in S. coeruleans caspicus Mistsh. form Transcaucasia and Iran, with tubercles). Hind tibiae sky-bluish, yellowish, or whitish.

..... *20. S. coeruleans (L.)—Blue-winged desert locust [Golubokrylaya pustynnitsa].

a (b). Hind femora on the inside with 2 light bands, hind tibiae whitish, sometimes with a sky-bluish tinge. Coloring of body light, usually with a whitish head and ventral part of lateral lobes of the pronotum. Length of body ♂ 17.5-21.0, ♀ 23.5-30.0 mm; tegmina ♂ 17-20, ♀ 23.0-29.5 mm.—Shores of the Black Sea from the Crimea to Bulgaria; Greece, Italy, Sicily. Sea shores and banks of estuaries *20a. S. coeruleans exornatus Ned.

Nedelkov, 1907, Period. Spis. bolgarsk. knizhn. dr., XVIII.422, Mishchenko, 1936.87, 218.

b (a). Hind femora on the inside black, with one complete light band.

623 c (d). Wings with a diffused dark band. Body often very dark, with an admixture of black coloring. Length of body ♂ 15-18, ♀ 20.0-24.5 mm; tegmina ♂ 15-19, ♀ 20.0-25.5 mm.—Northwestern part of the European U. S. S. R.: region of mixed woods from Ivanovo in the East to the Baltic Region in the West (south Leningrad Region, Estonia, Latvia, Lithuania); southern Scandinavia, Poland, northwestern Europe to France and northern Austria. Rocky shores of rivers and sandy areas *20b. S. coeruleans cyanopterus (Charp.)

Charpentier, 1825, Horae Ent., 143, tab. II, 3 (Gryllus); Jakobson, 1905:274; Mishchenko, 1936.87, 221.

d (c). Wings without a dark band.

e (f). Pads near the base of the ventral valves of the ♀ ovipositor smooth. Vertical diameter of the ♀ eye shorter than the subocular groove. Length of body ♂ 14-26, ♀ 22-31 mm; tegmina ♂ 15-25, ♀ 22-23 mm.—European part of the U. S. S. R. southward from the region of mixed woods, excluding the Lower Volga Region, western Kazakhstan: region of Uralsk (!); an isolated spot in Kirghizia; northern foothills of the Kirghiz range; western Europe from the Black Sea to Italy, Spain, and southern Sweden. Within the

limits of the steppe region it stays on sand
 *20c. S. coerulans coerulans (L.)

Limaeus, 1767, Syst. Nat., ed. XII, 1(2) 701 (Gryllus) Jakobson, 1905:273, Mishchenko, 1936 87,
 216, Figures 16, 21, 80

f (c). Pads near the base of the ventral valves of the ♀ ovipositor with tubercles. Vertical diameter of the eyes in the ♀ nearly equal to the length of the subocular groove. Length of body ♂ 14.5-19.0, ♀ 22.0-27.5 mm, tegmina ♂ 15.5-19.5, ♀ 23-26.5 mm. — Eastern Transcaucasus, Lenkoran District; northern Iran shores of the Caspian Sea *20d. S. coerulans caspicus Mistsh.

Mishchenko, 1936 88, 223, Figures 81, 82.

- 45 (44). More slender and graceful, and narrower at the shoulders. Eyes large, their vertical diameter in the ♂ considerably longer than the subocular groove, in the ♀ equal to it or barely longer. Pronotum more weakly narrowed anteriorly but the constriction is stronger, lateral lobes narrow, their height considerably greater than their length, the ventral margin weakly sloping, often curved in an S-shape, postero-ventral angle rounded or slightly projecting but not produced. Pads near the base of the ventral valves of the ♀ ovipositor with tubercles (Figure 1295). Hind tibiae dirty sky-bluish or sky blue. *21. S. coerulipes Uv. — Dark-blue-legged desert locust [*Sinenogaya pustynnitsa*].
- a (f). Wings sky-bluish at the base without a greenish tinge, the dark band present or absent. Head distinctly projecting above the level of the pronotum, eyes more elongated. Tegmina in the ♀ often reaching the apexes of the hind tibiae.
- b (c). Hind tibiae bright sky-blue. Wings without a dark band. Body rather thickset, hind femora in the ♀ only 3.4-3.6 times as long as their greatest width. Length of body ♂ 14.5-16.5, ♀ 24.0-26.5 mm, tegmina ♂ 15-18, ♀ 22-27 mm. — Transcaucasia Armenia, valley of the Araks, Lenkoran (transitional form of the subspecies djakonovi Mistsh., similar to the typical form in body structure but differing in the color of the hind tibiae, found in Georgia and northern Azerbaijan), northwestern Iran, Asia Minor. *21a. S. coerulipes coerulipes Uv.

Uvarov, 1922, Ent Monthly Mag, (3) III:83; Mishchenko, 1936 88, 233 Figure 9

- 624 c (b). Hind tibiae yellowish sky-bluish, dirty sky-bluish, or sky-bluish. Wings with a dark band or without it. Body more slender and graceful, hind femora 3.7-4 times longer than their greatest width.
- d (e). Space between the lateral lobes of mesosternum narrower, 1.5 to 1.8 times wider than long. Wings without a dark band. Body light, yellowish or grayish-yellow. Hind femora on the inside often with the suggestion of a second light band near the middle. Length of body ♂ 15.5-16.5, ♀ 22.0-25.5 mm, tegmina ♂ 16.0-17.5, ♀ 21.5-26.0 mm

—Central and southern Iran, 21b. S. coerulipes kermanicus Predt.

Predtechenski in. Mishchenko, 1936 84, 239.

- e (d). Space between lateral lobes of mesosternum wider, 2-2.2 times wider than long. Wings with a diffuse dark band or without it. Body often dark ochereous (from yellowish-brown to brownish gray in color). Length of body ♂ 14.5-19.5, ♀ 19.5 to 26.5 mm; tegmina ♂ 14.5-19.5, ♀ 20-28 mm. —Southern Crimea, Ciscaucasus, Lower Volga Region, Black Sea shores of the Caucasus, Georgia, northern Azerbaijan, Dagestan; Turkish Armenia(!). The dark band on the wings is marked in most specimens from Turkish Armenia, often in Crimean specimens, very rare in North Caucasian specimens and absent in the other cases.
 *21c. S. coerulipes djakonovi Mistsh.

Mishchenko, 1936;88, 235. —turcicus Mishchenko, 1936 88, 231 (partim).

- f (a). Wings near the base dirty sky-bluish, with greenish tinge, the dark band always absent. Head not projecting above the level of the pronotum; eyes more rounded. ♀ Tegmina relatively shorter, not reaching the apexes of the hind tibiae. Body rather thickset. Hind tibiae dirty sky-bluish or yellowish sky-bluish. Length of body ♂ 15.0-16.5, ♀ 22.0-26.5 mm; tegmina ♂ 15.0-17.5, ♀ 20.5-23.5 mm. —Orenburg steppes, Kazakhstan (except the northern and southern parts) to Zaisan depression and Irtysh, south of Altai steppes; western Mongolia (Figure 1299).
 *21d. S. coerulipes uvarovianus B. -Blenko.

Bei-Blenko, 1926, Trudy Sibirskoi akademii sel'skogo khozyaistva i lesovodstva, VI, No. 8;12, Figures 2, 3 (partly, not Bei-Blenko, 1929), Uvarov, 1927a;138. —zaisanicus Mishchenko, 1936 88, 237, Figures 86, 87 (S. coerulipes).

- 46 (43). Wings with a distinct, brownish black, not transparent band, slightly narrowed toward the anterior margin, base of wing with a weak sky-bluish tinge, nearly transparent. Median carina of pronotum in the dorsal part of the prozona hardly raised like a roof (more conspicuous in the ♂) but in the metazona weak, not sharp; metazona without sharply raised rugae and tubercles; lateral lobes considerably higher than long, the ventral margin strongly sloping, postero-ventral angle acute, slightly produced. Head weakly projecting above the pronotum; frontal ridge flat at the fastigium, with blunt not elevated margins. Hind femora on the inside with 1-2 light bands, hind tibiae sky-bluish, with a light ring at the base. Pads at the base of the ventral valves of the ♀ ovipositor with tubercles. Length of body ♂ 15-16, ♀ 23 to 24 mm; tegmina ♂ 16-17, ♀ 22-23 mm. —Asia Minor: Anatolian Plateau.
 22. S. turcicus Uv.

Uvarov, 1930, Eos, VI 367, Figures 10, 11, Mishchenko, 1936 88, 231 (partim).

47 (11). All principal longitudinal veins of the fan of the wing black nearly to the very base or completely so. Sides of abdomen with dense punctures, especially in the ♂. Ventral margin of hind femora in the middle part distinctly arcuately convex, especially in the ♀. Wings clear as glass at the base or barely sky-bluish, in front of the outer margin with a weak sometimes nearly obsolete smoky band. Hind femora on the inside light with 2 dark bands, the basal one of which is sometimes nearly obsolete or otherwise, developed in the form of a spot. Hind tibiae yellowish. Length of body ♂ 15.5-18.5, ♀ 24.0-24.5 mm; tegmina ♂ 16.5-19.5, ♀ 23.5-24.0 mm. —China: eastern Tibet (province of Sikan) and Yunnan, at an altitude of more than 3-4 thousand meters above sea level. . . .
 23. S. yunnaneus Uv.

Uvarov, 1925, Journ. a. Proc. Asiat. Soc. Bengal., XX:328, Mishchenko, 1936-175, Uvarov, 1939, The Linnean Soc. Journ., Zool., XI:565, tab. 18, Figure J.

48 (12). Dorsal valves of ♀ ovipositor near the base weakly thickened, the ventral valves ventrally at the base, smooth. Wings with a diffuse dark band (Figure 1302). Postero-ventral angle of the lateral lobes of the pronotum broadly rounded, sometimes only indistinctly obliquely truncate. Hind femora on the inside dark, with 1-2 light bands. Length of body ♂ 16.5-18.5, ♀ 23.5 to 28.0 mm; tegmina ♂ 18-20, ♀ 22.5-27.0 mm. —Kashmir: eastern Afghanistan.
 24. S. kashmirensis Uv.

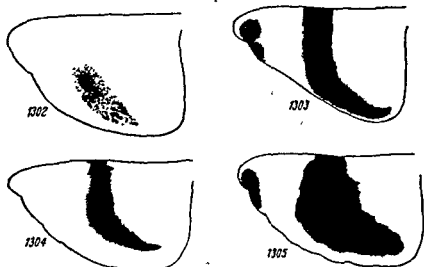
Uvarov, 1925, Miss. Babault Prov. Centr. l'Inde et l'Himal., Orthopt., Acrididae:18, Figures 2-4, Uvarov, 1927a:133, Figures 140, 149, Mishchenko, 1936 88, 224.

49 (4). Median carina of pronotum in the anterior part of the prozona distinctly compressed from the sides and raised in the form of a small crest, in the metazona low but distinct, sharp; metazona with isolated sharp carinate rugulae. Wings with a dark band. Space between the lateral lobes of the mesosternum wide, 2-2.2 times wider than long. Posteroventral angle of lateral lobes of pronotum ventrally produced or with a process

a (b). The dark band of the wings narrower, sometimes not reaching the anterior margin of the wing, apex of wing not darkened (Figure 1304). Length of body ♂ 13-17, ♀ 19-25 mm, tegmina ♂ 13-17.5, ♀ 17-24.5 mm. —Eastern Ciscaucasus, Lower Volga Region, western Kazakhstan (region of Uralski!), Middle Asia; northern Iran, Asia Minor, Palestine, North Africa to Algiers.
 *25a. S. curasius Mistsh.

Mishchenko, 1936:193, Figures 75-76 —callosus Brunner-Wattenwyl, 1882:154 (partim); Jakobson, 1905 273 (partim), Uvarov, 1927a:138, Figures 145, 155 (nec Fieber)

626 b (a). The dark band of the wings at least in the ♂ wider, the apex of the wing darkened (Figure 1305). Length of body ♂ 13.0-14.5, ♀ 17-18 mm; tegmina ♂ 13-15, ♀ 16.5-18.0 mm. —Central Kazakhstan



Figures 1302-1305. Dark band on wings of species Sphingonotus Fleb.
(Original)

1302—S. kashmirensis Uv., ♀; 1303—S. savignyi Sauss., ♀;
1304—S. eurasius eurasius Mistsh., ♀; 1305—S. eurasius orientalis
B.-Bienko, ♂.

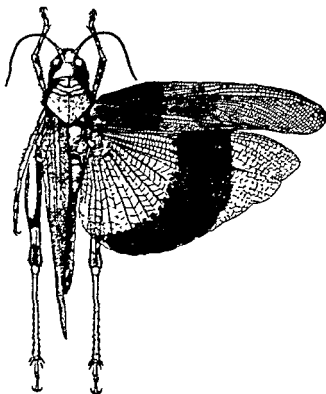


Figure 1306. Sphingonotus nebulosus discolor Uv., ♀ (Dzharkent)

(Dzhezkazgan!, northern limits of Bet-pak-dal') and southeastern Kazakhstan to the Alakul depression and the Charyn river. Rocky and salt-marsh deserts. *25b. S. eurasius orientalis B -Bienko.

Bei Bienko, 1948 *Izvestiya AN Kazakhskoi SSR (seriya zoologicheskaya)* 8 191, Figure 5

- 50 (1). Wings with a distinct completely developed band (Figures 1303, 1307-1314). Space between the lateral lobes of the mesosternum narrow, not more than 1.5-1.8 times wider than long Body large or of average size
- 51 (66) Median carina of pronotum low for its whole extent, in the anterior part of the prozona not raised in the form of a small crest, but if sometimes raised then the wing is without the dark spot on the apex (Figure 1306).
- 52 (53). Wings near the base perfectly colorless, farther on with a narrow, strongly curved, black band (Figure 1303) Hind femora on the inside yellow, with one dark band (Figure 1300). Spurious median vein of the tegmina strongly curved in an S-shape, in both sexes finely dentate, on the apex very close to or touching M. Longitudinal (jugal) veins of the fan of the wing slightly thickened, the first of them not thicker than the remaining ones behind it. Hind tibiae yellow. Length of body ♂ 22-32, ♀ 29-38 mm, tegmina ♂ 23-31, ♀ 29-37 mm -Southeastern Kazakhstan (smaller form), Middle Asia (except the mountains), Azerbaijan, Georgia, Iran, Palestine, Arabia, Kashmir, western Pakistan, North Africa. Sandy stony deserts.*26. S. savignyi Sauss.

Saussure, 1884 208 Jakobson 1905 275 Uvarov 1927a 135 Mishchenko 1936 95 Figure 4, Tarbinskii, 1940 32 211

Biology Bei Bienko 1948, *Izvestiya AN Kazakhskoi SSR (seriya zoologicheskaya)* 8 190

- 627 53 (52). Wings colored at the base, if sometimes nearly colorless, then the hind femora are black on the inside with 1-2 light bands. (Figures 1306-1309).
- 54 (61). Wings with light translucent apex (Figures 1306-1309).
- 55 (60). The dark band of the wings not very wide, narrowing beyond the middle toward its posterior end The longitudinal (jugal) veins of the fan of the wing not thickened, the first of them thicker, the remaining ones behind it thinner (see lumen!)
- 56 (57). The dark band of the wings touching their posterior margin (Figures 1306-1307). Hind tibiae often sky blue, without dark bands. Pronotum, at least in the ♀, with a roughened metazona. Pads at the base of the ventral valves of the ♀ ovipositor with tubercles. Body often with rather dense hairs. Stays in rocky areas and among rocks (or crags).*27. S. nebulosus (F. -W.) -Rocky desert locust [Skal'naya pustynnitsa].
- 628 a (f). Base of wings monochromatic, sky-bluish, greenish blue, or nearly colorless.
- b (e). Base of wings nearly colorless, only slightly sky-bluish or greenish Metazona of pronotum moderately roughened, posterior angle slightly rounded.
- c (d). Base of wings faint sky-bluish. Hind tibiae sky blue to dark blue. Length of body ♂ 16-18, ♀ 28-33 mm, tegmina ♂ 17-19, ♀ 27-32

mm; —Southeastern Altai, Zaisan depression, middle belt of Kazakhstan to Mugodzhar in the west, south Orenburg steppe; northwestern Mongolia, Dzungaria. (Figures 1232, 1307)
 *27a. S. nebulosus nebulosus (F.-W.)

Fischer-Waldheim, 1846:290, tab. XXXII, Figure 1 (Oedipoda); Jakobson, 1905:276, Uvarov, 1927a:135, Figure 154, Mishchenko, 1936 89, 244 (partim).

- d (c). Base of wings faint greenish yellowish or colorless; at the inner margin sometimes with an indistinct violet tinge (transitional form of subspecies d and e). Hind tibiae yellowish, yellowish sky-bluish, or with a greenish tinge. Length of body ♂ 18-24, ♀ 25-33 mm; tegmina ♂ 19-23.5, ♀ 27-32 mm. —Southeastern Kazakhstan from the Balkash Region (the town of Balkash!) to the southern slopes of the Dzungarian Ala Tau, southern part of central Kazakhstan (deserts of Bet-pak-dal!), Tien Shan, Pamiro-Alai to southwestern Tadzhikistan, Kopet Dag; eastern Iran; western Pakistan. (Figure 1306). *27b. S. nebulosus discolor Uv.

Uvarov, 1933, Izvestiya AN Kazakhskoi SSR (seriya zoologicheskaya), (1932), 1:199; Mishchenko, 1936:90, 247 (partim).

- e (b). Base of wings bright greenish sky-blue. Metazona of pronotum strongly roughened, its posterior angle acute, not rounded. Length of body ♂ 18.5-21.0, ♀ 26-37 mm; tegmina ♂ 19.5-22.0, ♀ 30.0-32.5 mm. —Asia Minor to Turkish Armenia in the east.
 27c. S. nebulosus anatolicus Uv.

Uvarov, 1930, Eos, VI 366, Figure 9, Mishchenko, 1936:90, 250.

- f (a). Base of wings duochromatic: sky-bluish at the base of the anterior margin and violet in the remaining part.
 g (h). Basal part of wing pale, violet tinge faint. Pronotum weakly roughened, its posterior angle rounded. Length of body ♂ 25.5-27.5, ♀ 34.5-38.0 mm; tegmina ♂ 24.0-28.5, ♀ 31.5-40.0 mm. —Southern Kazakhstan, low-lying and foot-hill part of Middle Asia, including the Ferghana valley. *27d. S. nebulosus violascens Uv.

Uvarov, 1926, Eos, II-354, Uvarov, 1927a:176, Mishchenko, 1936 90, 248

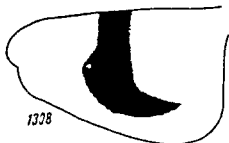
- h (g). Base of wings brightly duochromatic, its posterior part bright violet purple. Pronotum strongly roughened, its posterior angle acute, not rounded. Length of body ♂ 17.5-25.0, ♀ 28-40 mm; tegmina ♂ 19-28, ♀ 28-37 mm. —Southern Transcaucasia: from Armenia and the valley of the Araks to Lenkoran; Iran
 *27e. S. nebulosus persa Sauss.

Saunders, 1884 205, Jakobson, 1905 276, Uvarov, 1927a:136, Mishchenko, 1936 90, 249, Tarbinski, 1940 32, 210.

- 57 (56). The dark band of the wings not touching their posterior margin (Figures 1308, 1309). Hind tibiae yellowish, with 1-2 (dark sky-bluish or dark bluish) bands, more conspicuous on the inner and



1307



1308



1309



1310

Figure 1307-1310. Dark band on wings of species Sphingonotus Fieb.
(Original)

1307—S. nebulosus F.-W., ♂, 1308—S. mongolicus Sauss., ♂,
1309—S. longipennis Sauss., ♂, 1310—S. octofasciatus Serv., ♂.



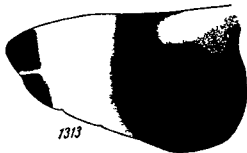
1311



1312



1314



1313

Figure 1311-1314. Dark band on wings of species Sphingonotus Fieb.
(Original)

1311—S. obscuratus transcaspicus Uv., ♂, 1312—S. obscuratus apicalis
Sauss., ♂, 1313—S. obscuratus latissimus Uv., ♂, 1314—S. salinus
Pall., ♂

ventral aspect. Pronotum smooth. Pads at the base of the ventral valves of the ♀ ovipositor without tubercles, smooth.

- 58 (59). Smaller. The dark band far from reaching the inner margin of the wing (Figure 1308); base of wing sky blue. Hind tibiae with one dark band situated in front of the middle. Hind femora rather well-proportioned, 4 times longer than their greatest width. Last sternite of ♀ abdomen with a weak process in the middle of the posterior margin. Length of body ♂ 18.0-21.5, ♀ 22-27 mm; tegmina ♂ 22-26, ♀ 22-30 mm. —Southern Transbaikal, Amur Region (Blagoveshchensk), south Ussuri Territory (region of Lake Khanka); Mongolia, China from Manchuria and the province of Hopeh to the province of Kansu, Korea. In the Transbaikal it stays on the stony banks of rivers *28. S. mongolicus Sauss.

Saussure, 1888 82, Jakobson, 1905 274, Mishchenko, 1936 88, 229.

- 59 (58). Larger. The dark band of the wings long, in the form of a quarter circle, nearly reaching the inner margin (Figure 1309); base of wing sky-blue-greenish, sometimes nearly colorless. Hind tibiae with 2 dark bands; in front of the middle and the apex. Hind femora short, stout, only 3.3 times longer than wide. Last abdominal sternite in the ♀ with a notch on the middle of the posterior margin. Length of body ♂ 26-27, ♀ 32-34 mm; tegmina ♂ 29.5-31.0, ♀ 34.0-38.5 mm. —Afghanistan, north India to the Himalayas, southeastern Tibet (province of Sikan), Kashmir 29. S. longipennis Sauss.

Saussure, 1884 203, Kirby, 1914:156, Mishchenko, 1936 90, 257; Figure 24 —Indus Saussure, 1884 204

- 60 (55). The dark band of the wings unusually wide, posterior only a little narrowed and leaving a long narrow unshaded border on the posterior margin of the wing; width of the band amounting to more than 1/3 of the wing-length. Longitudinal (jugal) veins of the fan of the wing slightly thickened, the posterior ones of them not thinner than the first (see lumen!). Spurious median vein of tegmina strongly curved in an S-shape and approaching M on the apex. Base of wings sky-blue; inner aspect of hind tibiae dark bluish-gray. ♂ unknown. Length of body ♀ 36, tegmina 40 mm. —Western Himalayas: Baltistan. (The basic subspecies in India and Arabia, the rest are known from west Pakistan, Egypt and Eritrea.) 30. S. balteatus himalayanus Uv.

Uvarov, 1923, Journ. Bomb. Nat. Hist. Soc., XXIX-546, Mishchenko, 1936 90, 254

- 61 (54). Wings darkened on the apex or with a large dark spot there (Figures 1310-1314).
- 62 (63). Base of wings red. Tegmina with distinctly alternating blackish and light bands, without dark speckles. Hind femora on the inside yellow, with one dark band or dark with 2 light bands. Frontal ridge narrow; its width at the fastigium less than or barely equal to the width of the first antennal segment. Length of body ♂ 16.5-

24.5, ♀ 25.0-34.5 mm, tegmina ♂ 19.0-27.5, ♀ 25-37 mm. —Kazakhstan Dzungarian pass, Dzarkent, foothills along the Il, Dzhezkazgan, southern spurs of Karatau, Middle Asia, east and south Transcaucasia; Dzungaria, Hither Asia, North Africa to Algiers Stony deserts and conglomerates along the banks of rivers (Figure 1310) *31. S. octofasciatus (Serv.)

Serville, 1839 Hist Nat Ins Orth 728 (Oedipoda) Uvarov, 1927a 137, Figure 144 Mishchenko 1936 91, 264 —history Saussure 1854 208 Jakobson 1905 276 (partim).

- 63 (62). Base of wings sky-bluish or black. Tegmina without distinctly alternating dark and light bands, with small spots in the apical part. Hind femora on the inside black, with one complete light band.
- 64 (65). Dorsal aspect of ♀ ovipositor of the usual structure, without a deep narrow notch and strongly tooth-like process (as in Figure 1248) Longitudinal (jugal) veins of the fan of the wing slightly thickened, the posterior of them in the ♂ not thinner than the first (see lumen'). Apex of wing with a dark spot, sometimes divided into 2 separate spots (Figures 1311-1313). The dark band wide and then narrower at the anterior margin, than in the middle, or strongly widened behind, or the band is rather narrow, nearly or not completely reaching the inner margin of the wing *32. S. obscuratus (Walk.)
- a (d). The dark band of the wing not very wide, in the form of an arc, in the posterior half distinctly narrowing caudad (Figures 1311, 1312) Basal third or half of the wing sky-blush. Hind tibiae yellowish or sky-bluish.
- b (c). The band narrower, leaving the basal half of the wing transparent, not narrowed toward the anterior margin and not reaching or barely reaching the inner margin of the wing, the greatest width of the band amounts to only 1/4 to 1/5 of the length of the wing (Figure 1311). Length of body ♂ 27.5-31.0, ♀ 31.0-34.5 mm, tegmina ♂ 27.5-32.5, ♀ 31-37 mm. —Turkmenia Kopet Dag 32a. S. obscuratus transcaspicus Uv.

Uvarov 1925 Journ Bomb Nat Hist Soc XXX 268 Uvarov 1927a 136 Figure 151; Mishchenko 1936:91 272

- 631 c (b) The band of the wing wider, leaving nearly its basal third transparent, often slightly narrowed toward the anterior margin, but reaching behind to the inner margin of the wing, the greatest width of the band not less than 1/3 the length of the wing (Figure 1312). Length of body ♂ 30-42, ♀ 30-44 mm, tegmina ♀ 34.0-40.5 mm —Eastern Iran from Shahrud in the north to Sargad and Bazman(?) in the south. . . . 32b. S. obscuratus apicalis Sauss

Saussure, 1884 206 Jakobson 1905 276 Uvarov 1927a 136 Figure 152 —brunnei Mishchenko 1936:91 269 (partim) (S. obscuratus).

- d (a) The dark band of the wing posteriorly very strongly widened so that the base of the wing is black in the posterior half (Figure 1313). Hind tibiae sky blue or dark blue.

- e (f). Nearly all the base of the wing sky-bluish, i.e., the basal third of its two anterior lobes and part of the fan. Hind tibiae sky blue, ventrally sometimes with a slight violet tint. Length of body ♂ 29.5-36.0, ♀ 30-41 mm; tegmina ♂ 31.5-40.0, ♀ 33-39 mm. —Eastern Kara-kum, lower course of the Amu Darya, southern Uzbekistan, southern Tadzhikistan. . . . *32c. S. obscuratus brunneri Sauss.

Saussure, 1884 206, Jakobson, 1905 276 (partim); Mishchenko, 1936 91, 269, (partim), —latissimus Uvarov, 1927a 136 (partim) (S. obscuratus)

- f (e). Only the narrow band at the anterior margin of the base of the wing sky-bluish, so that the dark band is widened on the inside to the very base of the remaining part of the wing (Figure 1313). Hind tibiae sky blue or dark blue. Spurious median vein of tegmina often straight and not approaching M on the apex. Length of body ♂ 34-38, ♀ 35-41 mm; tegmina ♂ 34.5-39.0, ♀ 39-43 mm. —South-eastern Kazakhstan: Kara-kum in the Ili Region, left bank of the Ili east from Charyn; Ferghana valley; Gobi desert in Mongolia; stony, sandy deserts. The ♂ rattles, not loudly, while flying *32d. S. obscuratus latissimus Uv.

Uvarov, 1925, Journ. Bomb. Nat. Hist. Soc., XXX, 268, Uvarov, 1927a: 136, Figure 150, Mishchenko, 1936 92, 270, Figure 25

- 65 (64). Dorsal valves of ♀ ovipositor with a deep narrow preapical notch separating off a strong blunt tooth-like process (as in Figure 1301). Longitudinal veins of the fan of the wing not thickened, but the first of them is thicker than the remaining ones behind it. Apex of wing with a dark network of veins and with a slight darkening on it, but without a sharply separated [or delimited] dark spot. The dark band wide, narrowing after the middle, reaching the inner margin of the wing. Hind tibiae yellowish. Length of body ♂ 29.0, ♀ 35.0-36.5 mm; tegmina ♂ 31, ♀ 35-39 mm. —Western Iran: Arabistan. 33. S. decarinatus Uv.

Uvarov, 1933, Trudy Zoologicheskogo Instituta AN SSSR, (1932), 1 200, Mishchenko, 1936 92, 278, Uvarov, 1938, Ann. Mag. Nat. Hist., (11), 1-375

- 66 (51). Median carina of pronotum in the anterior part of the prozona distinctly raised and projecting in the form of a little crest. Foveolae well marked. Wings with a large dark spot on the apex, sometimes broken up into 2-3 separate spots (Figure 1314). Hind tibiae yellowish.
- 67 (68). Very large. Metazona of pronotum with distinct lateral carinae. Antennae monochromatically yellow. Inner aspect of hind femora black with 2 complete light bands. Dorsal valves of ovipositor as in Figure 1310. Base of wings of a milky color or slightly greenish yellow; the dark band wide, narrowed in the posterior half, touching the posterior margin of the wing and reaching its inner margin. Length of body ♂ 27.5-35.0, ♀ 37.5-45.0 mm; tegmina ♂ 31.0-37.5, ♀ 33-42 mm. —Southern Kazakhstan, Middle Asia (except the mts.), including the Ferghana valley, Transcaucasia: eastern Georgia, valley of the Araks, Iran, Iraq, Palestine. Loess

foot-hill deserts, sometimes injures young crops on reclaimed lands *34. S. satrapes Sauss. — "Satrap" desert locust [Pustynnitsa-satrap].

Saussure 1884 199 Jakobson, 1905 273 Uvarov, 1927a 137, Mishchenko, 1936 92, 276, Figure 27

68(67). Medium size. Metazona of pronotum without lateral carinae. Antennae with dark rings. Inner aspect of hind femurs black with one complete light band. Dorsal valves of ovipositor without a deep preapical notch and tooth-like process. The dark band of the wings not touching their posterior margin (Figure 1314).

69(70). Wings near the base rose-red, apex of first two lobes with a dark spot, sometimes divided by a thin light line into 2 separate spots (Figure 1314). Posterior margin of pronotum obtuse-angled, its lateral lobes in the ♀ higher, their height distinctly more than their length. Dorsal valves of ♀ ovipositor with a weak suggestion of a wide preapical notch, i. e., with the dorso-outer margin curved in a strong S-shape (Figure 1248). Length of body ♂ 20.5-24.0, ♀ 28.0-34.5 mm, tegmina ♂ 20.5-24.5, ♀ 26-34 mm — Eastern Ciscaucasus, Lower Volga Region, Kazakhstan (southward from the steppes region) to Zaisan depression, Middle Asia (except the caucasia, China Dzungaria. Dry salt marshes and takyrs with sparse *Salsola* plants.*35. S. salinus (Pall.) — Saline soil red-winged desert locust [Krasnokrylaya solonchakovaya pustynnitsa]

633

Pallas, 1773, Reise Russ. Reiches II 727 (*Cryllus Locusta*) Mishchenko 1936 92 273 Figure 26
Tarbinskii, 1940 33 211 — zinnii Kittary 1849 Byulleten' Moskovskogo obshchestva ispytatelei prirody
XXII 470 Plate VIII, Figure 6 — octofasciatus Jakobson 1905 273 (nec Serville) — zuchkini Adelung
1906 Materialy k pomanlyu fauny i flory Rossiiskoi imperii 7 86

70(69). Wings slightly yellowish, nearly colorless, near the base, besides the large dark spot on the apex of the first 2 lobes, there is a smaller spot on the apex of the third lobe. Posterior margin of pronotum nearly rounded, without a distinct angle, lateral lobes, counting from the antero-ventral angle, quadrate in the ♀ Dorsal margin of dorsal valves of ♀ ovipositor dorsally widely concave, not curved like an S. Length of body ♂ 18.5-20.5, ♀ 26.5-28.5 mm, tegmina ♂ 21.5, ♀ 27.5-27.9 mm. — China Kashgaria (Valley of the Kyzyl-su River) Mountainous stony semidesert at an altitude of 2,300-2,400 meters. 36. S. tenuipennis Mistsh.

Mishchenko, 1937 Ann Mag Nat Hist (10), XX 90

194. Genus Vosseleriana Uv.

Uvarov, 1924 Min Agric Egypt Techn Scient Serv Bull No 40:31 Bel-Blenko 1950a 202 —
Sphingonotus Mishchenko 1936:72 (nec Flober).
Type of genus: Vosseleriana fontii (Bol.), Morocco.

Like Sphingonotus Fieb., but differing by the specialized organ of stridulation on the tegmina; many convex cross veins together forming a dentate convex line (Figure 1252) between R and M; spurious median vein smooth, less convex in the apical part than the adjoining sectors of R and M. Hind femora on the inside light, with one dark band.

Species of this genus outwardly resemble members of different groups of genus Sphingonotus Fieb. They are distributed in the southern limit of the desert mediterranean areal of Sphingonotus Fieb., from western Pakistan and southern Iran through North Africa to the Canary Islands. 7 species are known but the discovery of new species formerly confused with species of the genus Sphingonotus Fieb. is possible. Only 3 species are considered below; they are distributed in Iran and western Pakistan.

- 1(2). Wings wide, with a distinct black band in the form of a quarter of a circle, absolutely colorless at the base, clear as glass; length of wing only 1.5 times more than the width. Eyes not so large, oval, their vertical diameter in the ♀ not much longer, in the ♂ not longer than the subocular groove. Hind tibiae rather dirty white or sometimes with a slight greenish tinge. Length of body ♂ 21-25, ♀ 24-30 mm; tegmina ♂ 22-24, ♀ 24-29 mm. —West Pakistan, southeastern Iran (!). Externally very reminiscent of Sphingonotus savignyi Sauss. and has been confused with it. (Figure 1252).
 1. V. paradoxa (B.-Blenko).

Bel-Bienko, 1948, Doklady AN SSSR, LX-498, Figure 3 (Sphingonotus). Bel-Bienko, 1950a:202. —
savignyi Mishchenko, 1936:95 (partim) (Sphingonotus).

- 634 2(1). Wings narrower, without a dark band or with a weak, hardly perceptible, incomplete band; length of wing 1.7-1.8 times more than its width. Eyes large and rounded, in the ♂ 1.5 times longer than the subocular groove, in the ♀ a little longer than that or equal to it. Hind tibiae with a sky-bluish tinge.

- 3(4). Wings with the suggestion of a narrow dark band or with indistinct spots in place of it, colorless near the base. Space between the lateral lobes of the mesosternum narrower, in the ♂ 1.6-1.8, in the ♀ 1.5 times wider than long. Length of body ♂ 15.5-16.5, ♀ 25.5-28.0 mm; tegmina ♂ 18.0-18.5, ♀ 24.5-29.5 mm. —West Pakistan, southern Iran. Basic subspecies in Egypt and Arabia.
 2. V. picta onerosa (Mistsh.)

Mishchenko, 1936 108 (Sphingonotus).

- 4(3). Wings without signs of a dark band or dark spots, sky-bluish at the base. Space between the lateral lobes of the mesosternum wider, in the ♂ 2.2 and in the ♀ 2 times wider than long. Length of body ♂ 14.5-17.5, ♀ 22.5-24.5 mm; tegmina ♂ 15.5-18.5, ♀ 20-24 mm. —Southeastern Iran.
 3. V. dentata (Predt.)

Predtechenskiy in: Mishchenko, 1936-146, Figures 55, 56 (Sphingonotus)

Bei Benko 1950a:203 205

Differs from Sphingonotus Fieb. by the following characters Antero-ventral angle of lateral lobes of pronotum strongly produced in the form of an acute-angled, more rarely right-angled process, the ventral margin of the lobes strongly arcuately incised (Figure 1249). Prosternum between the bases of the front legs strongly swollen in the form of a tumor, space between the lateral lobes of the mesosternum strongly transverse, 2.6-3 times wider than long, widened caudad (Figure 1253).

Only one species is known.

- 1 (1). Foveolae rather distinct, especially in the ♀. Frontal ridge with sharp margins, in the ♂ with a distinct groove above the median ocellus. Hind femora on the inside light with 2 dark bands the anterior of which is usually not complete, hind tibiae yellowish-white, sometimes with a slight sky-bluish tinge. Wings slightly sky-blush at the base, the dark band absent or hardly perceivable in the form of a faint darkening. Body ochreous-grayish or brownish-gray, with dark spots or nearly monochromatic the dark band in the middle of the tegmina, if present, usually not extending as far as their anterior margin. Length of body 14.5-21.0 in the ♂, ♀ 21-32 mm, tegmina ♂ 14.0-20.5, ♀ 20-30 mm. —Lower Volga Region Kazakhstan from Uralsk to Zaisan depression and farther south, Middle Asia, Transcaucasia, western Mongolia, Dzungaria, Kashgaria, all of Hither Asia, North Africa to Algiers Loess deserts and takyr. Sometimes slightly injures cotton and grain in Middle Asia (Figures 1249, 1253) *1 S. carinatus (Sauss.) —Ribbed desert locust [Rebristaya pustynnitsa]

Saussure 1888 79 (Sphingonotus) Mishchenko 1936 186 Figure 20 (Sphingonotus) Bei Benko 1950a:203 Figures 5-6 —mecheriae Krauss 1893 Jahresb. Ver. Nat. Würtemb. XLIX.XCV (Sphingonotus) Uvarov, 1927a:138 Figures 147 (Sphingonotus) —uvarovianus Bei Benko 1926 Trudy Sibirskoi akademii sel'skogo khozyaystva i lesovodstva VI No. 8 12 (partly) excluding figures) (Sphingonotus mecheriae) 1929 ibid. XIII 182 (nec Bei Benko 1926) (Sphingonotus)

635 196. Genus Asphingoderus B.-Bienko

Bei Benko 1950a:203 205

Similar to Sphingoderus B.-Bienko in the form of the antero-ventral angle of the lateral lobes of the pronotum but differs in that the lobes themselves are somewhat widened in the ventral part, their ventral margin curved in an S-shape. Prosternum normal, space between the lateral lobes of the mesosternum longer, its width not more than double its length (Figure 1254). Sclerite of the second thoracic spiracle strongly elongated ventrally. Dorsal valves of ♀ ovipositor narrow, straight (Figure 1250). Oblique carinae on the sides of the supraanal plate in the ♂ strongly dentate

- One species is known, which has been subdivided into 2 subspecies.
- 1 (1). Small, with large eyes, the vertical diameter of which in the σ is considerably more than the length of the subocular groove, in the φ that diameter not being shorter than this groove. Metazona of pronotum hardly 1.5 times longer than the prozona. RS of tegmina posteriorly with 1-2 branches. Hind femora on the inside dark, with one light band. Length of body σ 12.5-13.0, φ 19.0-21.5 mm; tegmina σ 13.0-13.5, φ 17-18 mm. 1. A. uvarovites (Mistsh.)
- a(b). Wings with the rudiment of a dark band in the middle part, not reaching either the anterior or the posterior margin of the wings. Space between the lateral lobes of the mesosternum anteriorly not widened and not projecting forward, the transverse groove nearly straight (Figure 1254).—Asia Minor (Figure 1250)
 1a. A. uvarovites uvarovites Mistsh.

Mishchenko, 1936 88, 226, Figures 83-85 (Sphingonotus); Bei-Bienko, 1950a:203, Figure 7.

- b(a). Wings without the dark band. Space between the lateral lobes of the mesosternum anteriorly widened and in the φ slightly projecting forward, so that the transverse groove is convex anteriorly in the middle. —Northwestern Iran: Khamadan (type φ).
 1a. A. uvarovites similis B. -Bienko subsp. n.

197. Genus Helioscirtus Sauss.

Saussure, 1884 194 Jakobson, 1905 272; Uvarov, 1927a:139.

Type of genus: Helioscirtus moseri Sauss.

Similar to Sphingonotus Fieb. in structure of the head, pronotum, and legs and, similarly to the latter it has well developed, completely separated platelike tympanal lobe covering as much as a third of the opening of the sound organ, but it differs by the following characteristics of the hind wings (Figure 1255): the principal longitudinal veins in the σ (in some species also in the φ) thickened, and the cross [veins] regularly situated making rectangular cellules, and in the σ also thickened here and there; the field before M in its middle part is more than a third of the width of the whole anterior lobe of the wing; the 2 longitudinal veins of the second (anal) lobe of the wing, (i.e., 2A₁ and 2A₂) very close together before the 636 apex but strongly divergent toward the apex and toward the base; third lobe of wing anteriorly with an accessory longitudinal vein not reaching the base of the wing and terminating on the apex in one or more cellules, outer margin of wing weakly roundly projecting, nearly straight. σ Tegmina with dentate spurious median vein. Postero-ventral angle of lateral lobes of pronotum rounded.

5 species are known, one of which is distributed in the U.S.S.R. and adjacent countries, one in British Somaliland,* the rest in North Africa. A number of species are characteristic of stony deserts with some elements of North African and Hither Asiatic desert fauna. The $\sigma\sigma$ rattle with their wings during flight.

* [Now united with former Italian Somaliland into the Republic of Somalia.]



Figures 1315-1317

(Original)

1315—Hyalorrhapis clausi Kitt., ♀, head and pronotum from side, 1316—H. turcmēna Uv., ♂, pronotum from side, 1317—H. shestoperovi Uv. et. Mor., ♂, pronotum from side.

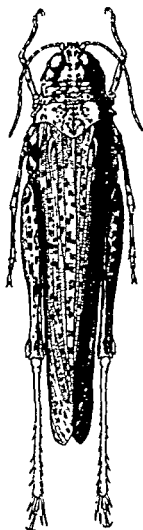


Figure 1318. Hyalorrhapis clausi
Kitt., ♀ (Repetek).
(Original)

The only species in the U. S. S. R. — H. moseri Sauss. — has been subdivided into 3 weakly differentiated and poorly studied subspecies of which H. moseri tichomirovi Stshelk. was formerly considered as an independent species, and H. moseri siazovi Uv. has been known only from southern Iran and is not cited below.

- 1 (1). Tegmina wide; spurious median vein in front of the apex strongly approaching or touching M, farther on arcuately recurved backward. Wings sky-bluish, wide, without the dark band; the principal longitudinal veins thickened also in the ♀ but more weakly so than in the ♂; 2A₂ gradually approaching 2A₁ from the base (Figure 1255). Tarsi of hind legs hardly more than 1/4 the length of the hind tibiae *1. H. moseri Sauss.
- a(b). Hind tibiae red or bright orange, more rarely yellow. Body larger; length of body ♂ 26-31, ♀ 29-33 mm; tegmina ♂ 27-31, ♀ 28-34 mm. —All the lowland of Middle Asia, including the Ferghana valley, southern and central Kazakhstan from Ust-urt to the deserts of Bet-pak-dal (!), Dzhezkazgan (!), northern Balkhash Region (!), Dzungaria; Iran, western Pakistan, Mesopotamia. Found sporadically, only on massifs of stony deserts. *1a. H. moseri moseri Sauss.

Saussure, 1884:195, Jakobson, 1905:272, Uvarov, 1927a:139, Figure 158 Bel-Bienko, 1949c:722.

- b(a). Hind tibiae yellow or light orange. Body not large, length of body ♂ 23-26, ♀ 24 mm; tegmina ♂ 23-27, ♀ 25 mm. —Transcaucasia: valley of the Araks; Iran: Azerbaijan, northern Khorasan (transitional form of the preceding subspecies). *1b. H. moseri tichomirovi Stshelk.

Shchelkanoutsev, 1909, Izvestiya Varshavskogo universiteta-40 (separate publication), Figure 1; Tarbinskii, 1940:33.

198. Genus Hyalorrhapis Sauss. —Sand locust [Peschanka]

Saussure, 1884:210, Jakobson, 1905:277; Uvarov, 1927a:140.

Type of genus: Hyalorrhapis clausi (Klt.).

- Like Sphingonotus Fieb., but differs by the fact that the inner pair of spurs on the apices of the hind tibiae are very long, equal to the first segment of the hind tarsi or even longer, and the general coloring of the body is sandy with numerous small dark speckles. Tegmina narrow, the spurious median vein in the apical part strongly approaching or touching 637 M; wings colorless or faintly sky-bluish, transparent, without the dark band. Postero-ventral angle of lateral lobes of pronotum obliquely truncate or produced ventrad, in some species very strongly so (Figures 1315-1317). Head anteriorly wide, nearly as wide as it is high, often strongly widened ventrad, foveolae indistinct.

About 10 species are known of which 2 are distributed in sandy deserts of the U. S. S. R., and one is a local species known from Iran but possibly also [found] in the Southern part of Middle Asia; the remaining ones occur in North Africa except one species from Arabia and two from southern Europe.

Evidently all the species are closely connected with a sandy substratum and are predominantly distributed in sandy deserts and semi-deserts, one south-European species (H. candida Costa from Italy including Sardinia), possibly lives on sea shores. The elongated spurs on the hind tibiae, characteristic for the given genus, are an adaptation for getting a hold on a loose substratum when jumping.

- 1(2). Antero-ventral angle of lateral lobes of pronotum obtuse, posterior angle obliquely truncate or weakly produced ventrad (Figure 1315). Spurs of hind tibiae unusually long, inner pair only a little shorter than the length of all the posterior tarsi. Middle femora very slender nearly twice as long as the front ones. Longitudinal veins of the fan of the wing in the ♂ distinctly thickened, considerably thinner toward the apex. Apical part of tegmen with not very regular elongated or quadrate cellules. Length of body ♂ 14-18.5, ♀ 19-22.5 mm [sic!], tegmina ♂ 15-18.5, ♀ 19-21 mm. —Eastern Ciscaucasus, Lower Volga Region, Kazakhstan from the lower course of the Ural to the valley of the Ili and the Zaisan depression, all the lowland of Middle Asia to Turkmenia. The general tone of coloring and the color of the dark spots varies from brownish yellow to dark brown depending upon the color of the sand (Figure 1318). *1. H. clausi (Kitt.)

Kittary, 1849, Byulleten Moskovskogo obshchestva ispytatelei prirody, XXII 39 (separate publication) Plate VIII, Figures 7-8 (Oedipoda) Jakobson, 1905 277, Uvarov 1927a 142, Figures 163 —insignis Uvarov, 1926, Eos, II 350, Uvarov, 1927a 142, Figures 164-165 (H. clausi)

Biology Bel-Bienko 1948 Izvestiya AN Kazakhskoi SSR (seriya zoologicheskaya) 8 191 192

- 638 2(1). Antero-ventral angle of lateral lobes of pronotum right or acute, posterior angle strongly produced ventrad (Figures 1316, 1317). Inner pair of spurs of hind tibiae only a little longer than half the length of the hind tarsi or even shorter. Middle femora not so long, at most 1.5 times longer than the front femora. Longitudinal veins of the fan of the ♂ wing normal. The wing is of the same thickness for all its length and more slender only at the apex
- 3(4). Inner pair of spurs of hind tibiae longer than the first segment of the hind tarsus, the outer ventral spur of the same length as this segment. Pronotum without dark spots. Antero-ventral angle of its lateral lobes produced ventrad if only slightly so, the drawn-out process of the posterior angle wide, distinctly bent back toward the outside (Figure 1316). Apical part of tegmina with regular transverse veins and narrow cellules, median field wider than the cubital, in the * in the apical part and in front of the spurious vein with rather regular transverse veins. Fastigium with dense impressed dots, its margins spongy. Length of body ♂ 20-21, ♂ 23-26 mm, tegmina ♂ 20-22, ♀ 24-25 mm —Turkmenia, southern Uzbekistan (Termez), Iran, Khorasan *2. H. Turcmena Uv.

Uvarov, 1926, Eos, II 351 Uvarov, 1927a 142, Figures 166-167

- 4(3). Inner pair of spurs of hind tibiae hardly equal in length to the first hind-tarsal segment, the outer pair considerably shorter. Pronotum

with dark spots, postero-ventral angle of the lateral lobes of the pronotum right, not produced ventrad; the elongate process of the posterior angle narrow, sharply separated, turned straight ventrad (Figure 1317). Apical part of tegmina predominantly with elongate cellules; the median field not wider than the cubital, with irregular cross veins. Fastigium and its margins smooth or with sparse punctures. Hind tibiae yellowish or faintly sky-bluish. Length of body ♂ 12.5-14.0, ♀ 20.0-23.5 mm; tegmina ♂ 12.5-13.0, ♀ 18.5-21.0 mm. —Iran: Khorasan, Kazvin, northern Kerman . . 3. H. shestoperovi Uv. et Mor.

Uvarov and Morits, 1929, Ann. Mag. Nat. Hist., (10) IV:536. —xrenosus Predtechenski in. Mishchenko, 1936 180, Figures 73-74 (Sphingonotus).

199. Genus Leptopternis Sauss. —Thin-spurred locust [Tonkoshpor]

Saussure, 1884:209, Jakobson, 1905 277, Uvarov, 1927a:143.

Type of genus: Leptopternis gracilis (Ev.).

Like Sphingonotus Fieb. but the inner pair of spurs of the hind tibiae long, nearly or quite equal to the first segment of the hind tarsi (Figure 1251); middle femora slender, not less than 1.5 times longer than the front ones. Head anteriorly narrow, distinctly higher than wide, ventrally not widened or slightly widened only in the ♀, strongly projecting above the level of the pronotum, frons slightly sloping (more distinctly so in the ♂). Pronotum strongly constricted in the prozona; median carina very thin, weak, usually not developed in the prozona. Postero-ventral angles of lateral lobes of the pronotum rounded, the ventral margin sometimes only in the ♀ with a weak corner-like process situated before the very postero-ventral angle. Tegmina long, narrow, wings transparent, without a dark band. Hind femora long, narrow. Coloring of body with a marking, even if indistinct, of spots and bands, but without numerous small speckles.

Several species, distributed in deserts from northwestern Mongolia and Dzungaria to Sahara; 2 species in the U. S. S. R.

- 1 (2). Hind femora light on the inside; hind tibiae monochromatic, light as far as the base: yellowish or sky-bluish. Pronotum longer, with dark and light longitudinal bands; width of metazona in the ♂ only 1.5 times, in the ♀ less than 1.5 times, greater than its length, the posterior margin roundly obtuse-angular. Body whitish, with a brownish marking in the form of longitudinal bands and dots, but without wide dark spots on the tegmina. Length of body ♂ 14-17, ♀ 24-27 mm; tegmina ♂ 15-19, ♀ 24-28 mm. —Lower Volga Region, deserts of Kazakhstan to Zaisan depression, Middle Asia, Transcaucasia (Apscheron peninsula, valley of the Araks, Armenia); China: Dzungaria, Inner Mongolia (Etsin-gol river), Hither Asia, North Africa. Stays on compact sandy salt marsh and sandy gravel soils, sometimes on sandy hillocks (Figure 1251). *1. L. gracilis (Ev.) —Slender thin-spurred locust [Tonkoshpor stroinyi].

Everman, 1848, Addit. Fisch.-Waldh. Orth. Ross., 10 (Oedipoda) Jakobson, 1905-277, Uvarov, 1927a:144, Figure 161.

- 2(1). Hind femora black on the inside, with a light preapical band, hind tibiae with black base and median band, divided by a light ring, in the ♂ often almost all black. Pronotum short, with 2 concave posteriorly widely spaced light lateral bands, width of metazona nearly twice its length, posterior margin broadly rounded, with a hardly perceptible posterior angle. Body brownish, with distinct dark bands on the tegmina. Length of body ♂ 14.5-16.0, ♀ 20-22, mm, tegmina ♂ 15-16, ♀ 19-22 mm. —Southern Kazakhstan from Syr Darya to the valley of the Ili, delta of the Amu Darya, northwestern Mongolia. Sandy alluvial deserts along the valleys of rivers *2. L. iliensis Uv. —Thun-spurred locust from the Ili region [Tonkoshpor iliskii].

Uvarov, 1925, Journ. Bombay Nat. Hist. Soc., XXX 262 Uvarov, 1927a:144

200. Genus Orinhippus Uv.

Uvarov, 1921, Journ. Bomb. Nat. Hist. Soc., XXVIII 72 Uvarov, 1927a 139

Reminiscent of Sphingonotus Fieb., in external form, but distinctly differs from all members of the subfamily by the rudimentary, perfectly lateral, organs of flight. Antennae rather stout and short, slightly thickened at the apex. Vertex sloping, depressed, in profile making an obtuse but not rounded angle with the frontal ridge. Pronotum on a level with the head, distinctly narrowed in front, but without a constriction, median carina weak, intersected by 2 transverse grooves, metazona not longer than the prozona, posterior margin broadly rounded. Tegmina lateral, narrowly oval, extending slightly beyond the metanotum. Tympanal organ open [or exposed] but not membranous.

One species is known.

- 1(1). Gray or ocher, with dark dots and speckles, antennae and legs with dark and light rings. Frontal ridge with a groove, constricted below the ocellus. Hind tibiae sky-bluish or straw colored, their bases, an indistinct ring in the middle, and the apex dark. Length of body ♂ 9, ♀ 18 mm, tegmina ♂ 1, ♀ 2.5 mm. —Tibet Everest, at an altitude of 3,900-4,500 meters 1. O. tibetanus Uv.

Uvarov, 1921, Journ. Bomb. Nat. Hist. Soc., XXVIII 72, Uvarov, 1927a 140 Figure 159

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† [This index and the Latin name index cover the two parts of G. Ya. Bel-Bienko's and L. L. Mishchenko's book "Locusts and Grasshoppers of the U. S. S. R. and Adjacent Countries. "]

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† [In this case the same common name "desert locust" is given to the genus Sphingonotus Fieb.]

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† [This index has been reproduced photographically from the Russian original.]

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